THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 16. APRIL 21, 1945 VOL. 57.

Some of the Common Disorders of Calves*

R. LOVELL

RESEARCH INSTITUTE IN ANIMAL PATHOLOGY,

ROYAL VETERINARY COLLEGE

There are no reliable figures giving the incidence of calf diseases and only sporadic attempts have been made to measure calf mortality. There is, however, some indication that this is considerably lower than half a century ago and it appears as if some factor or factors are operating in favour of the health of calves. During the two years 1885-87 there was, in Denmark, a 66 per cent. death-rate (Jensen, 1893), and in Ireland in about 1903 (Editorial, 1903) a percentage death-rate of 32 was experienced. Observations made in one area in Scotland (Jordan, 1933; Smith, 1934) show during the period 1931-34 an annual death-rate of 20 to 22 per cent. In 1936-37 more extensive data were collected from 335 dairy herds in England and Wales and 47 in Scotland (Lovell and Hill, 1940). Owing to the disposal of bull calves at an early age the death-rate for female calves was accepted as a better index. Of 12,544 female calves born in England and Wales over the two-year period 693 or 5·5 per cent. died. Comparable figures for Scotland show a death-rate of 11·4 per cent., and those for the northern and north-western agricultural divisions of England were 6 per cent. The statistics for the same period for the county of Yorkshire show a death-rate of 5·25 per cent. and are based on the records of ten herds comprising 438 cows; of 476 female calves born alive 25 died. These figures mean that throughout the country one calf in 18 born alive is lost and this does not include abortions and stillbirths which, if added, would show that 14·3 per cent. of pregnancies or one in seven fails to produce an adult animal. The actual deaths in calves in Yorkshire approximate to 10,000 per annum and are calculated as follows: This county contains about 250,000 cows in milk, cows in calf and heifers in calf, and if we assume the annual birth-rate to be of the order of 200,000 calves then a death-rate of 5·25 per cent. means an annual loss of over 10,000 calves.

A pronounced seasonal swing in the death-rates has been recorded and it is quite evident that factors inimical to calves have a greater influence in the early part of the year than in the later months. Jordan (1933) and Smith (1934) noted mortality rates of 25 per cent. in the spring with 8 per cent. in the autumn. A variation in the same direction, but less pronounced, was observed in the survey made in 1936-37 (Lovell and Hill, 1940), and there is some evidence that a similar seasonal variation existed in Denmark in 1885-87.

The problem is clear; an enormous amount of disease occurs annually in calves and is apparently more prevalent in the spring months of the year. Is it possible, with the knowledge available, to reduce this loss?

The aetiology of Calf disorders. Aetiology means that part of any special science which deals with causes; it is rare to find a disease that has a single cause and therefore the study of the aetiology of calf diseases must include a consideration of age, nutrition, general hygiene, breed, species as well as any specific microbial or other agent. The predisposing causes are probably as important as the exciting causes and little attention has been paid to this aspect of preventive medicine. Climate is of prime significance as the mortality rate is greater in the north than the south and still greater in Scotland. Variations in the humidity, the sunshine and the wind may play a considerable part and McCandlish (1939) considers that lack of sunshine, which is linked with a vitamin D deficiency, may explain the seasonal swing in mortality. Some of the answers to our problems can be supplied by veterinary practitioners co-operating with farmers. Are calves subjected to ill-ventilated, dark and damp sheds more likely to become ill than those in more modern buildings? Is the main factor a lack of warmth, ventilation or light? These considerations assume greater significance with calves than with adults. The equilibrium which a calf establishes with its environment is much more delicately balanced than that established by a grown bovine. Bacteria which may under certain circumstances kill calves are often a part of the normal flora of adult cattle. The main organisms associated with white scours—*Bact. coli*—are present in adult cows; *C. pyogenes* and the haemolytic coccobacillus, which are frequently concerned with calf pneumonia, are commonly found in normal adults. This high carrier rate is a biological phenomenon, for *Str. agalactiae* is far more frequently found in cows than the incidence of mastitis would suggest (Anon., 1944) and human beings carry in their nasopharynx potential pathogens far in excess of the incidence of the corresponding diseases such as pneumococcal pneumonia and meningococcal meningitis (Straker *et al.*, 1939). My endeavour is to point out that a disease affecting a community is a complex affair made up of cases of disease, individuals which are latently infected, uninfected immunes and uninfected susceptibles. The proportions vary with the community and the disease, but the latently infected may outnumber the overt cases of disease and in any community carrying young stock then a large proportion of the young is probably to be found in the uninfected susceptible group. Diseases are not always introduced from outside, "and a man's foes shall be they of his own household." The protection given must therefore either be by:

(1) immunological methods or by

(2) hygienic methods.

Immunisation of calves against prevalent disease is liable to disappointment because of the multiplicity of bacterial species; passive protection with commercial immune sera is less logical than with sera from the mother or adult cattle which have inhabited the same environment for an extensive period. Hygienic methods include adequate feeding, lighting, ventilation with sufficient warmth, and general cleanliness; an effort is made to restore a normal ecological relationship between the animals and their surroundings.

White scours is credited with being one of the commonest diseases of calves and attacks them within a few hours or days of birth, and in most cases is associated with invasion of the blood stream with *Bact. coli*. Special virulent strains of *Bact. coli* exist but predisposing causes are almost invariably necessary, especially in calves of a few days old. The commonest is some error in feeding and this is accompanied by abnormal curd formation in the fourth stomach which resists digestive action. The dietary error is one of over-feeding and is more commonly found in bucket fed calves. Under natural circumstances calves take food from their mothers frequently and in small quantities, but "on the bucket" they are rarely fed more than three times per day. This compares unfavourably with the artificial feeding of babies, which is done five to six times daily. Lack of colostrum as well as any digestive disturbances may lead to a quantitative increase in the bacterial flora of the intestines and the invasion of the tissues depends partly on this increase and partly on the virulence of the organisms present (Smith and Little, 1922a). There is agreement on the advisability of giving colostrum to calves but its method of action has caused some controversy.

Colostrum supplies the calf with certain proteins—globulins—and there is a relationship between the accumulation of globulins and the appearance of certain antibodies in the blood of calves following the feeding of colostrum (Orcutt and Howe, 1922). The agglutinins against prevalent bacteria found in the blood stream of newborn calves are obtained from the colostrum; the rate of absorption is rapid for the agglutinins appear within a few hours (Little and Orcutt, 1922). One function of colostrum, then, is to provide calves with antibodies against miscellaneous bacteria which are harmless to them later in life. These antibodies are in greater concentration in the colostrum than in the serum; this fact has been established with *Bact. coli* recovered from cases of scours and cows which have been in the same environment for a considerable time. Milk, following colostrum, has lost its protective power, but serum may be used as a substitute for colostrum (Smith and Little, 1922b, 1923; Smith, 1930). The newborn calf, if denied colostrum, should receive its protective meal of serum as soon after birth as possible and the serum should be from a cow in the same environment. The protective action of the serum appears to remain intact for months; it should not contain an antiseptic and should be given by the mouth. One meal of 500 to 700 c.c. is probably sufficient, although 1,200 to 1,500 c.c. has been suggested, and

* Presented to the Yorkshire Division, N.V.M.A., at Leeds, January 26th, 1945.

this may be reinforced by subcutaneous or intravenous injection of about 20 c.c. The advantages of immune serum would not appear to outweigh the cost of production, especially as the types of *Bact. coli* vary. It is important to remember that the calf's intestine is permeable to these antibodies during the first few days of life only.

A suggestion that colostrum acts because of its vitamin content is based on the observation that calves born of mothers with a low content of vitamin A in the colostrum were more liable to infections such as white scours than were calves from mothers whose colostrum had a higher vitamin A content (Stewart and McCallum, 1938a). Vitamin A has a bearing on the protective mechanism against bacterial invasion and is stored whilst the cow is at pasture. It is lost during winter feeding and this may account for the seasonal influences in calf mortality because a winter pregnancy would be followed by a low vitamin A content of the colostrum. So far, it has not been possible to influence the vitamin A content of colostrum by feeding carrots and cod-liver oil to cows during the later months of pregnancy. Attempts which have been made to influence the incidence of white scours by giving vitamin A concentrates direct to calves at birth have not proved satisfactory either (Greig, 1943).

American authors have paid attention to vitamin A, and B, C and D as well. It has been shown that the vitamin A content of the blood plasma of calves is low at birth but there may be a five-fold increase after colostrum is taken. This probably gives the calf an opportunity to build up a considerable reserve in the liver (Moore and Berry, 1944). The synthesis of the B complex may be inadequate in the newborn calf and apparently vitamin C is not synthesised for the first two or three weeks. There is some suggestion that the synthesis of this vitamin may also be inadequate unless sufficient A is provided. Where the colostrum is likely to be deficient or where scouring exists it is recommended that calves be given shark-liver oil and capsules containing one or more of the B group of vitamins. Certain field cases of scouring have been controlled by shark-liver oil and nicotinic acid (Phillips *et al.*, 1941; Lundquist and Phillips, 1943). The former provides vitamins A and D and the latter is a part of the B complex; it is possible that a supplement of yeast in the diet would also give good results because of its vitamin content, and it may be that the use of raw eggs as a remedy for scours is thus explained.

The balance that exists between *Bact. coli* and the intestinal tract of calves is therefore a delicate one and if it is upset in favour of the bacteria scours supervenes. The relationship is probably a quantitative one for *Bact. coli* is present in normal calves but in small numbers. In all cases of intestinal disturbance *Bact. coli* increases in numbers and infection spreads, and invasion of the tissues may occur. The equilibrium must be maintained and under natural circumstances colostrum followed by suckling would appear to be sufficient. Because of economic conditions calves have to be reared on artificial food and as a result calves should be given at birth colostrum or serum from a cow in the same environment, and for the first three or four weeks of life extra amounts of vitamins A and D and some of the B complex.

Salmonella dublin infection usually attacks older calves and although the chief reservoir of infection is the bovine, it infects not only this species but human beings as well. In man it may cause a continued fever or symptoms of food poisoning. In calves there may be a bloodstained diarrhoea and pneumonia, and a septicaemia may develop. Sporadic cases and outbreaks have occurred in calves in this country and "carrier" cows are known to exist (Bosworth and Lovell, 1931; Conybeare and Thornton, 1938; Craig *et al.*, 1941).

Contagious pneumonia of calves may be associated with a variety of bacteria, *e.g.*, *C. pyogenes*, haemolytic cocco-bacilli, pasteurella and *Actinobacillus actinoides*. From time to time other agents have been stated to be the actual cause. Lamont and Kerr (1939) suggest that calf influenzal pneumonia is infectious and that it is likely that the exciting cause is a virus. Baker (1943) has brought some evidence forward that epidemics of a disease which occurs in America every 15 to 20 years and is characterised by fever, diarrhoea and pneumonia, is caused by a virus; recovery is apparently common. Shigley and Thorp (1943) suggest a mixed infection of a virus and a haemoglobinophilic organism as a cause of calf pneumonia. The common killing agents in calf pneumonia are *C. pyogenes* and the haemolytic cocco-bacillus. Both are carried by normal animals but in diseased lungs either or both may be present in very large numbers. Although an exciting agent such as *A. actinoides* may be the primary cause in a proportion of cases, there is little doubt that adverse environmental conditions are responsible for initiating many cases. In *C. pyogenes* infections the use of *C. pyogenes* antitoxin is of value and in that and in other cases sulphapyridine is said to effect many cures.

Calf diphtheria is an occasional disease caused by *Fusiformis necrophorus* and characterised by necrosis of the mouth and throat. Young calves may die within a few days whilst older ones may succumb to a necrotic pneumonia some weeks later. Sulphapyridine or sulphanilamide have been used with good results (White, J. B. 1943).

Acute lead poisoning. There are apparently many more cases of acute lead poisoning than at one time thought. Usually the calves are found dead after previously being found normal. In some cases symptoms are observed. These last for a few hours only and consist of bellowing, blindness, staggering and attempts to climb walls. The disease is not always acquired from fresh paint; a number of cases have been observed in which lead poisoning had been produced from licking paint from old wood or ironwork commonly used in calf pens. The time which elapses between ingestion of paint and death is not known but in one case death occurred a week after the animal had been removed from any possible contact with painted materials (White and Cotchin, 1944).

There are many other diseases from which calves might die and they are probably less common than those already enumerated. They include coccidiosis, which is characterised by blood-stained faeces, calf tetany and parasitological conditions such as hoose, which may largely be prevented by avoiding moist pastures.

Early post-natal life is the most critical period of a calf's existence and therefore any preventive measures which are adopted to lower calf mortality should be concerned with the cow during pregnancy as well as with the newborn calf. The seasonal swing in mortality has been associated with the diet of the mother during the later days of pregnancy, and Stewart and McCallum (1938b) suggest that in order to ensure a high vitamin A content of colostrum, cows should be allowed a non-lactating period of not less than three months. This merely exemplifies the necessity to link up good calf husbandry with care of the mother during pregnancy. Cows perform a double job; they secrete enormous quantities of milk and are pregnant at the same time. Other domestic animals are not expected to do both at the same time and if the comfort and diet of the cow are inadequate then the calves are born with a bad start. Strong, healthy calves at birth cause little trouble unless neglected. Calf rearing is an art and calves should have constant care and attention. They should be protected from inclement weather and exposure to infection and should not be subjected to sudden or drastic changes either in feeding or housing. Young stock is delicate. Calves are no exception. It is recognised that babies are very susceptible to the common cold and that exposure to such infection may lead to a bronchitis and gastro-intestinal disturbance. Prevention of calf disease should consist of an appreciation of the requirements of young stock, their extreme susceptibility to some of the common forms of infection and their need for regular and frequent feeding. Over-feeding is bad. Heroic methods are of no avail and the attempts made to rear calves should emulate the natural way as far as economic conditions will allow. Finally, there are huge gaps in our knowledge of calf diseases, especially with regard to their natural history, and those of you who have the opportunities to observe their spread and their predisposing causes, should record them. When we know more we shall doubtless find how simple are the methods of prevention.

References

Anon. (1944.) *Imp. Bur. Anim. Hlth. Rev. Ser.* No. 2.
Baker, J. A. (1943.) *J. exp. Med.* **78.** 435.
Bosworth, T. J., and Lovell, R. (1931.) *Rep. Inst. Anim. Path. Univ. Camb.* 2. 21.
Conybeare, E. T., and Thornton, L. H. D. (1938.) *Rep. publ. Hlth. med. Subj.* London. No. 82.
Craig, J. F., Davies, G. O., and Massey, K. M. (1941.) *Vet. J.* **97.** 145.
Editorial. (1943.) *J. comp. Path.* **16.** 264.
Grfig, R. (1943.) *Vet. Rec.* **55.** 291.
Jensen, C. O. (1893.) *Mh. prakt. Tierheilk.* **4.** 97.
Jordan, L. (1933.) *Vet. J.* **89.** 202.
Lamont, H. G., and Kerr, W. R. (1939.) *Vet. Rec.* **51.** 672.
Little, R. B., and Orcutt, M. L. (1922.) *J. exp. Med.* **35.** 161.
Lovell, R., and Hill, A. B. (1940.) *J. Dairy Res.* **11.** 225.
Lundquist, N. S., & Phillips, P. H. (1943.) *J. Dairy Sci.* **26.** 1023.
McCandlish, A. C. (1939.) *Res. Bull. W. Scot. agric. Coll.* **7.**
Moore, L. A., and Berry, M. H. (1944.) *J. Dairy Sci.* **27.** 867.
Orcutt, M. L., and Howe, P. E. (1922.) *J. exp. Med.* **36.** 291.
Phillips, P. H., Lundquist, N. S., and Boyer, P. D. (1941.) *J. Dairy Sci.* **24.** 977.
Shigley, J. F., and Thorp, W. T. S. (1943.) *Cornell Vet.* **33.** 218.
Smith, R. M. (1934.) *Vet. Rec.* **14.** 1004.
Smith, T. (1930.) *J. exp. Med.* **51.** 473.
——— and Little, R. B. (1922a.) *Ibid.* **36.** 181.
——— ———. (1922b.) *Ibid.* **36.** 453.
——— ———. (1923.) *Ibid.* **37.** 761.
Stewart, J., and McCallum, J. W. (1938a.) *J. comp. Path.* **51.** 290.
——— ———. (1938b.) *J. agric. Sci.* **28.** 428.
Straker, E., Hill, A. B., and Lovell, R. (1939.) *Rep. publ. Hlth. med. Subj.* London. No. 90.
White, E. G., and Cotchin, E. (1944.) *J. Minist. Agric.* **51.** 85.
White, J. B. (1943.) *Vet. Rec.* **55.** 275.

Discussion

Mr. W. Tweed opened the discussion and congratulated Dr. Lovell on his paper which contained new material and gave us a new interest in the problem of calf disorders. Of calves reared, home-bred or purchased, the latter gave most trouble, but even with home-bred calves outbreaks of white scour occurred some years on some premises for no obvious reason. He agreed with Dr. Lovell that contributory causes were as important as causal organisms in calf diseases. The death-rate throughout the country must be very high. He had the figures obtained from knackeries, but these were not too reliable because older calves were included in this category. Slaughterhouse experience had shown that large numbers of calves were dealt with as casualties. He would put the diseases found in these in the following order of occurrence: white scour; congestion of the lungs; jaundice; pyogenes infection of the lungs, liver and pleura; diphtheria; joint ill; melanosis, etc.—white scour being obviously the bug-bear of calf rearing. He was interested to hear that *Salmonella dublin* organisms had been isolated in some of these cases, and from a meat inspection viewpoint he would like Dr. Lovell to deal with this type of infection in greater detail.

The importance of feeding colostrum in preventing white scour was borne out by the fact that calves fed on foster mothers sometimes developed the disease if the cow was not newly calved. Whether the vitamins and antibacterial substances contained in colostrum were the most useful preventive of white scour or not remains to be proved. The reserve of immunity at birth had to be considered and with the sow and the bitch, for example, it was important for them to receive a correct diet and sunlight during pregnancy to produce healthy offspring.

Infection existing on the premises was also a problem.

The diseases which occurred later in life, such as tuberculosis and Johne's disease, were also preventable at an early age and he would like Dr. Lovell's opinion on the custom of suckling of cows affected with mastitis and Johne's disease.

With regard to pneumonia, his experience was that outbreaks of pneumonia were not common in young calves but occurred in older calves. Whether a virus was implicated or not, he still thought a disease occurred in the North from time to time due to specific infection with an organism of the Pasteurella group.

There were many points in the feeding of calves—cleanliness, access to salt licks and water *ad lib.*, liberal protein diet, fish meal or linseed meal being useful in that respect providing care was taken in using linseed to feed it dry: never to moisten it with cold or lukewarm water, and leave it standing. If one fed it moist always use boiling water or boil the linseed to avoid prussic acid poisoning.

No doubt more points on feeding and contributory causes of loss might be offered by the agriculturists present at the meeting.

Mr. P. L. Shanks: For the purpose of the discussion on Dr. Lovell's very interesting paper he had made a rough analysis of *post-mortem* examinations made on calves at Leeds University during the last 18 months. The following figures were obtained: Out of 43 calves examined 16 were affected with white scours, nine with pneumonia (from two of which *H. influenzae* was isolated), two cases of suspected lactation tetany, two cases of enterotoxaemia, and 14 miscellaneous cases, many of which died from some undiscovered condition.

An interesting history was attached to two recent cases of white scour. In both cases the farmers owned pedigree herds and wanted to become attested. The local practitioner had advised the farmers to remove the calves from reacting cows at birth and feed them on milk from the cows free from tuberculosis. The calves, therefore, did not receive colostrum. There had been no cases of white scour on either farm for years. The procedure was followed by the first three calves on one farm and the first five cows on the second farm dying from white scour. He would like to ask Dr. Lovell if the injection into such calves at birth of serum from a bulk blood sample from the herd would not be more economical of serum than the oral administration of serum.

In view of Dr. Lovell's remarks about lead poisoning, his tentative diagnosis of lactation tetany in two cases might have been wrong, at least in one case. In this case two valuable calves died very suddenly and on visiting the farm the calf pens were examined. They were made from hurdles which had been painted a long time ago. There was evidence that the calves had removed some of the paint, but on being asked by the farm manager if he (the speaker) thought lead poisoning was the cause of death, he expressed the opinion that insufficient paint had been removed to cause poisoning. Perhaps his opinion was wrong. He should like to know what percentage of lead in the stomach and intestinal contents was sufficient to warrant a diagnosis of lead poisoning.

Mr. F. C. Scott: Dr. Lovell mentioned the large curd in the fourth stomach in cases of scour; this was commonly found in cases where white scour was not in question, and where rapid collapse, pain and recumbency had been the main symptoms. Accumulation of hair in fourth stomach or early intestine also caused death: Why? Would Dr. Lovell suggest the direct method of giving serum, viz., the veterinary surgeon bleeding the mother into citrate solution and giving the actual blood per os? Experience in mares of this method and injection into foals gave only transient and non-committal results. Clinically, would Dr. Lovell take intralobular oedema on *post-mortem* examination as evidence of pasteurellosis?

Concerning calf diphtheria, he had had one apparent response to sulphanilamide. Fatal cases usually showed liver infarcts.

In regard to lead poisoning, usually one found crusts in the fourth stomach, which bore out Dr. Lovell's remarks *re* the long period since intake of the lead.

According to Dr. Lovell, the incidence of disease in calves would appear to pick out the individual, but very often one came up against a contagious disease, *e.g.*, calf septicaemia.

He understood there was a salmonella which caused a meningitis in calves, differential diagnosis from milk tetany being by trial treatment with magnesium and chloral hydrate.

He quite agreed there were many gaps in our knowledge.

Mr. T. L. Bywater said that he wished to express his appreciation of a very useful address and also to thank the President and members for the invitation to be present. He agreed that environment played a vital part in the health of the calves. He explained that the Livestock Committee was launching a scheme for the purchase and rearing of bullock calves. These calves would later be sent out to arable farmers for fattening. There were to be three depots at which the calves would be reared. Each depot to handle 50 calves. It was their intention to keep the calves in units of four or five. They hoped thus to reduce the chance of spread of infectious disease. He asked Dr. Lovell what measures he would suggest to make the scheme a success.

Mr. G. K. Gathers-Pratt said that, as an ordinary farmer, he wished to confirm the value of colostrum in the rearing of healthy calves. Many farmers did not let the calf suckle her dam because there was a theory that the cow would give a better yield if this was not done. He had proved to his own satisfaction that there was no truth in this.

Capt. Skipwith, Chairman of the Livestock and Milk Production Committees, W.R.W.A.E.C., asked Dr. Lovell how much paint would have to be eaten to cause plumbism. He also wanted to know if Dr. Lovell thought they were undertaking a foolish thing in trying to rear these calves.

Mr. Frank Barker, Farmer, Bretton, Wakefield, said that he was sorry Dr. Lovell had not spoken about black-quarter and hoose. In his experience these were two diseases which were "on the farm." Before moving to his present farm he had lost a considerable number of calves from these two diseases. He went on to say that he was more successful in rearing his calves under war-time conditions than ever he had been before.

The Reply

Dr. Lovell thanked Mr. Tweed for opening the discussion at such short notice and hoped that he would record his experiences with the diseases of calves as seen in the slaughterhouse. The variation in the incidence of white scours from year to year and from farm to farm was probably linked with the virulence of the strain of *Bact. coli*. A prevalent strain tended to increase its virulence by attacking weakly calves at first and then it was able to cause illness in stronger animals.

Infection with *Salmonella dublin* was a disease mostly of older calves and was associated with bloodstained diarrhoea; there were often signs of septicaemia and pneumonia as well. The information that pneumonia associated with haemolytic cocco-bacilli was patchy in its geographical distribution was the kind of field observation which proved very valuable.

Dr. Lovell suggested to Mr. Bywater and Captain Skipwith that there were obvious risks from disease involving the scheme they proposed to adopt, but certain measures largely of a calf husbandry nature should lessen the risk. Calves were delicate animals and should receive careful handling and feeding. An adequate supply of colostrum or serum from a cow in the same area should be allowed and the subsequent feeding supplemented with vitamins A, D and part of B. The amount of lead paint necessary to cause acute lead poisoning in calves at the moment was being investigated. The points raised by Mr. G. S. Powley concerning the dangers of exposure and fatigue in transport are of great importance. Dr. Lovell was unable to help Mr. Scott as to the reasons for a depraved appetite in calves; it was probably associated with some dietary deficiency. As far as he knew, no one had recorded the giving of citrated blood instead of serum to newly born calves, but there seemed no reason why this should not be as effective although larger quantities would have to be administered. Meningitis due to a *Salmonella* was apparently not common. The experiences of Mr. Barker with the rearing of calves were interesting and informative; his methods of calf husbandry appeared to result in a low mortality. Dr. Lovell was glad that Mr. Shanks had given an account of his *post-mortem* findings in calves, that Mr. Watson had raised the question of navel ill and that Mr. Powley had given them the benefit of his experience with *S. dublin* infection. Finally, he was grateful to the Yorkshire Division and to the agriculturalists present for the kindly way he had been received and his thanks went out especially to Mr. Powley for the way he was looking after him.

"A PLANNED BREEDING POLICY"

Pleading for the above, a recent issue of the *Farmer and Stock-Breeder* asks if application of the principle "like begets like," which for the past hundred years or more has been accepted as the first item in the earnest stock-breeder's creed, should not be supplemented by guidance which the scientist may be better able to provide than the breeder. Quoting Dr. Nichols, whose book has been reviewed in these columns also, the question is postulated: Are our conventional breeding methods adequate, based as they are only on the breed and on the private herd? Dr. Donald, too, has pointed out that the pursuit by each breeder of an independent policy entails serious drawbacks to breed progress.

"In the next stage of the evolution of our breeding system it seems certain that such considerations as adaptation to environment, artificial insemination, in-breeding, the concentration of special strains in a breed, the scientific use of production records and pedigrees, and, above all, the co-ordination of the work of private and State breeding centres, will play a greater part. How these and other points are to be employed to adapt our livestock to the changing needs of the times and to the prospective insistence on productivity as the main justification for improvement is obviously the task of agricultural science.

"Aberystwyth achieved a revolution in one phase of our farming methods by the application of scientific research. Might we not hope, without being too sanguine, for as much from a similar intensive project applied to livestock? The station at Compton, under the Agricultural Research Council, is devoted to animal disease research on the field scale; could we have similar centres in various parts of the country to carry out a planned national programme of stock-breeding?

"Without such additional guidance in constructive breeding as might emerge from a co-ordinated programme we shall be left still further behind by Russia, the U.S.A., Australia and New Zealand, where the scientist works as breeder for the benefit of the animal husbandman. Here in this country we can as yet point only to the production of the Dorbar, Legbar and Cambar breeds of fowls as the direct result of the scientific outlook of Dr. Punnett. While we may not need new breeds of cattle, sheep or pigs, we do need to know how to breed them so that their usefulness can be not merely maintained but advanced."

* * * * *

Under the title of "Life Blood" an official account has been produced of the Blood Transfusion Services and published at 6d. net by the Stationery Office. It is well illustrated and contains a great deal of factual information not only on the use of blood for battle casualties and in civilian hospitals, but on blood grouping, the Rh factor and on the preparation of serum and plasma.

CLINICAL COMMUNICATION

Some Unusual Clinical Cases*

D. I. MacALLISTER, M.R.C.V.S., D.V.S.M.,
Stranraer

In the following short paper I wish to describe one or two unusual cases that I have had to deal with recently.

Case 1. This concerns a group of calves about three months old. *Post-mortem* examinations were made on three of the calves which had died suddenly. In each case a considerable quantity of chewed binder twine was found in the abomasum. The diagnosis given was that the twine appeared to be the cause of the deaths. It was suggested to the farmer that if any of the remaining calves appeared abnormal, it should be operated on with a view to removing the offending binder twine.

Early one morning the farmer 'phoned to say that one of the calves was in a fit. He was instructed to bring the calf to my premises immediately. On arrival in the yard the calf appeared quite normal. However, before I was ready to operate, it began to throw itself violently about the trailer. After a few seconds it lay on its side with head extended, eyes rolling, teeth grinding and legs going to and fro in walking movements. It was removed from the trailer as quickly as possible and anaesthetised with chloroform without delay.

I think it might be of interest here if I described the operative technique used as I have found it very satisfactory. The animal was laid on its back and a sufficient area of the abdomen quickly clipped and shaved. An incision about five inches long was made an inch behind the xiphoid cartilage, a little to the right of the mid line, and the abomasum exposed. The abomasum was lifted outside the abdomen and an incision made in it long enough to admit the fingers. There was not a shred of twine to be found anywhere. The stomach wound was closed with two rows of Lembert sutures, using 20-day gut. Sulphanilamide was liberally dusted about and the muscle closed with gut. The skin was sutured with stout nylon after further dusting with sulphanilamide. A bag was taken and four holes made for the legs, which were passed through, the sack then being pulled up and sewn firmly along the back of the calf. When it came round from the anaesthetic the animal appeared normal, but died next morning after having another fit At autopsy it was interesting to see how neatly the omentum had sealed the operation wound. Samples of the ingesta were sent for analysis as it was now obvious that the presence of binder twine in the other calves was coincidental and that some other cause of death must be sought.

Examination of the pen in which the calves were housed revealed the fact that the calves had been licking the door. Six years had elapsed since it was last painted and no deaths had taken place up to the present time. In anticipation of the result of the chemical analysis the remaining calves were dosed with mag. sulph. and moved to another pen. There were no further deaths. The analyst's report stated that lead had been recovered from the rumen and abomasum, samples to the extent of 1¼ gr. and 1/45th gr. per oz. respectively confirming the suspicion of lead poisoning.

Case 2. The second case concerns a cow aged about five years which was found to be in great distress when brought in for the morning milking. On examination she was found to have red paint around her mouth and sides. The trough was filled with saliva and red paint was floating on top of it. She was suffering from severe tympany.

Acute lead poisoning was suspected. A pound of mag. sulph. was given per stomach tube. On withdrawing the tube it was found to be covered with blood as well as paint. Immediate slaughter was advised. It was thought that she must have swallowed the lid of the paint tin, thus damaging the oesophagus. Examination at the slaughterhouse failed to confirm this but the rumen was found to contain no fewer than fifteen large hair-balls, between two and three inches in diameter. The carcase was in good condition and during life the animal had not shown any signs of indigestion. I was very sorry to have missed such a good subject for a rumenotomy, but how was the condition to be diagnosed?

Case 3. Two cows, in the same byre, within a few minutes of each other, dropped down dead shortly after coming in for the evening milking. One had calved unaided about a week previously while the other had about ten days still to go. After eliminating anthrax both were autopsied. The abdomen of the first was found to be full of congealed blood. The uterus had ruptured at the brim of the pelvis, death taking place from internal haemorrhage. On opening the second I was astonished to find the same thing, with the calf in amongst the intestines. I thought it was worth recording such an extreme coincidence.

Case 4. The fourth case concerns what I took to be louping-ill in a heifer. On first examination she had an elevated temperature and peculiar gait. At times she attempted to stand on her head. Ticks were found on her in profusion. Fever drinks containing aconite were prescribed and she was left to take her chance. A few days later I called in to see how she was progressing and found her lying in a small field near the steading, her head extended and her legs going to and fro. I injected 3½ oz. of mag. sulph. intravenously. Next morning I was surprised to hear that she was up and much improved. I repeated the injection the next day and in a day or two the animal appeared quite normal. Shortly after this, what I took to be an exactly similar case occurred on a nearby farm. Similar treatment, however, was of no avail and the animal died after two days. If they were both cases of louping-ill why did one respond to mag. sulph. and not the other? If they were both cases of magnesium deficiency it is surprising that the first one lived so long without getting mag. sulph. That the second one could have been a magnesium deficiency case which failed to respond to treatment is possible. I regret not having taken blood samples for analysis.

Case 5. This concerns an alarming outbreak of dysentery in some dairy cows.

One evening, after milking, 68 cows were put out on fresh pasture of second year grass which had been heavily treated with superphosphates. Next morning 19 of the cows gave practically no milk. They seemed healthy enough otherwise. They were returned to the same pasture with the rest of the cows until evening. When brought in at night, agalactia was again marked, and as swelling in the perineal region had developed, advice was sought. Examination of all the affected cows revealed marked yellowish colouration of the visible mucous membranes. Ragwort poisoning was suspected but careful examination of the pasture failed to reveal ragwort or any other poisonous plant. However, each of the 19 animals was given ½ lb. of common salt and 1 oz. formalin in 1½ gallons of water by stomach tube. The cows were kept in that night. When seen again next day all the affected cows had developed dysentery and one was found to be completely blind. Astringent drenches twice daily, containing pulv. opii, etc., were now prescribed. The remaining unaffected animals were put into a different field. Samples of the water supply were sent away for analysis but no organic or inorganic poisonous substance could be found.

After a few days the dysentery stopped, the swellings disappeared, the mucous membranes returned to normal and the blind animal regained its sight. The milk flow returned to normal in about three weeks. I am unable to give a satisfactory explanation as to the cause of the condition.

Case 6. The last case concerns the cutting of a colt and should be a warning to young practitioners, when cutting colts, to examine the testicles carefully after their removal.

The animal in question had changed hands at a displenishing sale. The new owner reported to me that his new gelding was behaving like a stallion. Enquiry revealed, to my discomfiture, that I myself had ostensibly castrated the colt about six months previously. On palpation of the scrotum the cord could be felt on the left side but nothing at all on the right. I concluded that I had "cut him proud." I cast him and removed about three inches of cord. However, this did not help matters and I observed him serving a mare about a fortnight later with great élan. Rectal examination revealed a large cystic testicle on the right side. I operated by the flank method and removed a testicle, about the size of a small football, containing yellow jelly-like fluid and some hair. The animal made an uneventful recovery and has since been a good gelding! I wrote to Professor Mitchell about it and he suggested that what had happened was that a loop of the cord had descended into the scrotum and it was this that I had removed in the first instance.

* Communicated to the Dumfries and Galloway Division, N.V.M.A., October 13th, 1944.

Weekly Wisdom

Four Propositions in Medical Education

". . . the aim of any form of education should not be to make leaders of a few, but to make the majority unwilling to be led. A capable G.P. is not a leader so much as a suggester, hinter, coaxer, jester and dealer in sly diplomacy. . . ."—The Lancet. (A Running Commentary by Peripatetic Correspondents.) 1944, September 9th, p. 356. Proposition No. 3.

ABSTRACTS

[**The Water Economy of Farm Animals.** Leitch, I., and Thomson, J. S. (1944.) *Nutr. Abs. Rev.* **14**. 197-223. (8 tables, 1 fig., 68 refs.).]

This review of the literature relating to water metabolism deals principally with cattle. It is shown that calves receiving a limited supply of fluid will not grow satisfactorily, and that cows lose weight when watered less than twice a day, for frequency of watering affects the quantity consumed. Milk yield is not reduced by watering only once a day, but fat yield may be 5½ per cent. higher when water is supplied *ad libitum*.

It has been suggested that estimates of water requirement may be based on the dry matter content of the food, and expressed as a water to dry matter ratio, but results show that the method is unsatisfactory because the result is affected by the type of food, scale of feeding, and external temperature. The water content of the faeces of dry cows is about 82 per cent. when they are fed on a maintenance ration of hay, but it decreases to about 72 per cent. if they receive a maintenance ration of concentrates. Milking cows have moister faeces—85 per cent. water—and the composition is not affected by the frequency of watering or the temperature. The volume of urine increases with the total amount of waste to be eliminated, and a high protein intake will greatly increase this.

The evaporation of water from the body surfaces is related to heat disposal. A heavy coat and a high plane of nutrition increase water evaporation. Under tropical conditions the respiration rates of European cattle are considerably greater than those of native cattle, and the loss of energy by the convulsive respiratory movements needed to shift the heat disposal from radiation on to water evaporation is largely responsible for the low production records of European dairy cattle in the tropics.

It is suggested that the water requirement of a dairy cow can be estimated if the following details are known. Dry matter and digestible nutrients contained in the ration, the difference giving the indigestible dry matter, which can be taken as faecal dry matter. The probable urine volume and the probable loss of water by evaporation can be obtained from tables given. The water lost in the milk is taken as 87 per cent. of the milk yield. The total volume of water required would be equal to the total loss less the water contained in the ration.

Sheep on fresh pasture require no water, but if fed dry food will drink from one to one and a half litres per day, rising to five litres in summer. If no water is to be supplied to fattening pigs the mash should contain three parts of water to one part of meal, but from about 16 weeks this ratio can be gradually reduced to 1¼:1 at bacon weight. The total intake for breeding sows is about 53 lb. daily, of which about 10 lb. is consumed in the food. Chicks require about 12 g. per head for the first month, rising to 80 g. by the third. Laying hens require a total of about 250 g. daily, assuming that one egg is laid each day.

J. O. L. K.

* * * * *

[**Running Fits Prevented and Cured by Raw Protein.** Morgan, A. F., and Groody, M. (1944.) *J. Amer. vet. med. Ass.* **105**. 406.]

A commercial dog food containing 20 per cent. protein, baked at 300° F. during preparation, produced running fits (fright disease) in a four months puppy five days after feeding was commenced. 2 mg. thiamin were given on each of three successive days, and 100 mg. of choline on the third day, but the fits continued. On the eighth day a diet containing 30 per cent. milk protein was commenced and the dog had no further fits and grew rapidly. First a water extract, and then an ether extract of the original ration were given with this diet, but no fits resulted. The original food was then restarted, and the fits occurred again ten days later. These were not prevented by the intraperitoneal injection of 10 mg. pyridoxine, but the administration of 20 grammes of raw casein daily produced an immediate cure. Five grammes daily of washed casein alleviated, but did not prevent, the fits. The total serum proteins and serum albumin were lower than normal when the heated diet was fed, but increased after feeding the casein. The dog was killed and on *post-mortem* examination cloudy swelling of the renal tubules and hyperplasia of the adrenal cortex with adenoma formation were the only abnormalities noted. It was concluded that some amino-acid deficiency caused these symptoms.

Another sample of the same food in which meat meal, which had not been heat treated, was added after the baking of the other ingredients, was fed with similar results. It was suggested that the protein in the unheated meat meal was either not sufficient in quantity or not high enough in biologic quality to remedy the condition.

J. O. L. K.

Questions and Answers

"Questions and Answers" will be published on alternate weeks.

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Growths on Penis of Bull

Q. LXII.—*What is the most effective treatment for small growths on the penis of the bull?*

A.—The most effective treatment for this relatively common condition is surgical removal, and the results attained are in most cases excellent.

The operation may be performed in the cast position necessitating the use of a general anaesthetic or in the standing position under the influence of epidural anaesthesia. The amount of anaesthetic solution required to produce relaxation of the retractor penis muscle is variable in individual animals. As a rule the amount required to produce relaxation also causes the animal to "paddle" the hind feet and stagger and there is, in this case, serious danger of injury to the penis therefrom.

The writer prefers the following method. Following 24 hours' starvation the animal is cast, and a general anaesthetic is given. The penis is withdrawn, a piece of 3 in. bandage being used to retain it. The growths are then removed by a pair of curved scissors and light thermo-cautery is used to arrest haemorrhage. An injection of anti-tetanic serum is given. The usual post-operative measures are observed, and the owner is instructed not to use the bull for at least a month and if he can be given two months' rest, so much the better.

Castration of the Adult Boar

Q. LXIII.—*What is considered the best method of castrating the adult boar?*

A.—The castration of the adult boar is a doubtful economic proposition. Normally boars are castrated with a view to fattening for slaughter and although castration may render a boar more tractable it is doubtful if the fattening period is very materially shortened when one considers the universal "set-back" which follows the operation. The dense, thick tissue in the neck region termed "the shield," which is characteristic of the aged boar, will not be materially reduced after castration and during the subsequent fattening period—although many farmers imagine the reverse to be the case. The flesh of an aged boar which has been castrated will always remain "boar meat" and will have no enhanced value for human food.

If castration is to be undertaken the boar must be effectively controlled. It should be driven into a strongly walled enclosure: a small cattle conveyance, if available, is admirable. The boar is then restrained by means of a noose passed around the snout behind the tusk, and secured to a stout beam or the front of the cattle conveyance. The operation is then performed in the usual manner, the emasculator being the instrument of choice of some. As the spermatic cord of the boar is very thin, many operators use a ligature as well as the emasculator. Another method in common use is to expose the testicle, separate the tunic, and twist the cord until separation occurs. This is quite a safe method, even in adult animals. Some operators then pour a mild antiseptic solution into the scrotal cavity or the cavity is lightly dusted with sulphanilamide powder (castrators not infrequently fill the cavity with common salt). Others strongly prefer to leave the scrotal cavity severely alone after the operation, holding that plenty of good clean bedding is all that is required.

Although an anaesthetic is not legally required, its use is obviously indicated both for ease of manipulation and on humanitarian grounds. Chloroform is usually well tolerated by the pig, but if this is considered inadvisable a local anaesthetic should first be injected into the testicles and the cord. Deep narcosis may be induced with chloral hydrate

Unknown Cause of Death in Store Pigs

Q. LXIV.—*Several deaths of recently weaned store pigs have recently occurred in my practice, the only history being associated with nervous inco-ordination. Post-mortem examination has revealed nothing diagnostic, the only lesions present being an excessive amount of fluid in the abdominal cavity and an occasional thickening of the stomach wall. What is the cause and preventive treatment of this condition?*

A.—The disease involved has been recorded under the title "oedema of the bowel," which is derived from the main *post-mortem* feature of cases which have been examined soon after death. Little is known of the actiology of the disease but the

history usually associated with such losses indicates that it is a form of indigestion. The common history is that the pigs have been bought about a fortnight before the first case developed and there is presumably a change in diet coinciding with the change of ownership. Very often, too, the new diet is a very rich one in order to promote rapid fattening. This was particularly true prior to the war when the disease was more common. The sudden change to a rich diet appears to provoke the disease and although it occurs most frequently in young store pigs it can occur in older pigs. The writer has recently seen an outbreak involving five pigs over 20 weeks old in which a sudden change was made from feeding the present pig fattening meal to the same meal supplemented by crushed oats and palm kernel meal. It is usual to find the disease in the best pigs, which are often the greediest feeders.

Although inco-ordination and inappetence are often the first symptoms noticed, careful observation even prior to these symptoms will show oedema of the upper and lower eyelids with congestion of the conjunctiva. There is no elevation in temperature; death usually occurs within 24 hours. To be satisfactory, the *post-mortem* examination should be carried out within a few hours of death. Then, in cutting the stomach wall a glistening gelatinous oedema will be seen between the mucous membrane and the muscular layer which are readily separated. There may also be oedema in the peritoneum in the folds of the large intestine. When the *post-mortem* examination is delayed for more than a few hours the oedema disappears from the tissues and appears as clear fluid in the abdominal cavity.

Treatment and Prevention.—Some cases, seen early, recover when given a purgative dose of mag. sulph.

To prevent further losses amongst a batch of pigs they should be starved for 24 hours and the original ration gradually reintroduced to them, using bran to dilute the food temporarily and taking three or four days to make the change. Sudden changes in the feeding of pigs should be avoided, especially changes from poor to rich foods.

. . . . .

Diagnosis of Pregnancy in the Bitch

Q. LXV.—*Can you give me advice regarding the diagnosis of pregnancy in bitches?*

A.—Diagnosis of pregnancy in some bitches, by palpation, is not by any means always an easy task, and the occasions are not few when several veterinary surgeons have held opposing opinions concerning one particular case. The tactile sense is not equally developed in everybody, in addition to which there may be many circumstances about a bitch which might militate against easy detection or recognition of any particular organ.

The uterine body is situated just above the bladder and, of course, inferior to the colon. If the bladder can first be found it may then be easier to discern the anterior end of the vagina, the cervix, and body of the uterus. Wright stated (*Vet. Rec.*, May 26th, 1934) that he could detect foetuses through the abdominal wall as early as the 18th day. On the other hand, the writer has often felt in considerable doubt until the 40th day was reached, and no doubt the examination is facilitated if the bowels are first emptied by an enema. Some practitioners are of the belief that detection by palpation is easier between the 24th and 30th day. That may be so in many cases, but the circumstances vary very greatly and difficulty arises in the bitches of large breeds, the very fat, and the nervous individuals. According to Wright, "the oval distensions in the cornua measure—from the 18th to 21st day—approximately 12 mm. long by 8 mm. broad. By the 24th day these distensions have become spherical and approximately 15 mm. in diameter. From the 38th to the 42nd day the constricted portions of the cornua, between the foetuses, commence to dilate. At this period the uterus comes in contact with the abdominal wall, and abdominal distension is becoming visible in bitches pregnant with three or more foetuses. In cases of one or two foetuses only, the accurate diagnosis of pregnancy at this stage may be difficult. Palpation may not reveal any detectable uterine enlargement and there is no obvious abdominal distension. From the 42nd to 50th day increase in foetal size is very rapid. By the 44th day the posterior ones can be felt between the fingers. From the seventh to the ninth week there should be no difficulty in diagnosis by abdominal palpation."

The indecision which has been felt by the writer in some of his cases (and which has been shared by many of his colleagues) has no doubt arisen from neglect to narcotise his patients and thus ensure that flaccidity of the abdominal muscles which appears to be so essential in arriving at a trustworthy conclusion. Practitioners have not always the time or convenience for going to that length, but whenever it is possible to do so, there is no doubt whatever that diagnosis will be immensely facilitated. Nembutal is unsafe for this purpose, morphia being preferable. If insufficient relaxation follows the use of morphia, one may give an ether inhalation.

It will, in the later stages, be of considerable help to carry out a digital exploration per rectum, as a posterior foetus can often be pushed (by the left hand) towards the finger of the right hand. To facilitate this, the bitch is best stood upon her hind legs. By the fifth week one usually can observe mammary changes, *e.g.*, the teats become bright pink in colour, slightly enlarged and more protuberant. At about the 45th day the teats become still larger, softer and tumefied, and pigmentation may occur. The glands enlarge from the 50th day onwards and a watery secretion appears about 36 hours before parturition. Sometimes no characteristic changes are observable until the terminal stage of gestation. During the last ten days or so, the abdominal distension drops to the pelvic region. Milk appears about two or three days before whelping in multiparous bitches, but may not make its appearance in primigravidae until the day of parturition. A few hours before the event, the vulva greatly enlarges and then one may expect an early arrival of the first puppy.

The foetal skeletons in bitches may in some cases be detected radiographically as early as the 50th day, and in the cat a few days earlier; but generally in the bitch there is little to be seen even at the 55th day. Balossier and Reydellet (*Rec. Méd. vét. exot.*, **109**, No. 4, 211-213) stated "that during the fourth week, by the rise of small voltage to diminish penetration of the rays, the uterus is shown as a bulb-shaped swelling with homogeneous contents and well-defined borders. At the start of the sixth week the shadow fills most of the abdominal area. This however only proves increase in the size of the uterus which may be due to pyo- or hydro-metra; the foetus only becomes visible during the seventh week (the skull bones at about the 45th day and the remainder of the skeleton after the 49th day)." On the other hand, the three radiographs of pregnant animals (which will be found in Kirk's "Index of Diagnosis," pp. 15, 375 and 540, 2nd edit.) clearly show that even at the 60th day of pregnancy in a bitch, only hazy outlines of foetal bones can be detected. As much, however, can be seen in the cat at the 53rd day; whilst at the 57th day the whole foetal skeleton is clearly depicted.

Lesbouyries and Berthelon (*Bull. Acad. vét. Fr.* **9**, 1) examined the urine of bitches known to be pregnant, for the presence of anterior pituitary and ovarian follicular hormones. The former was not found but the presence of the latter, after 15 to 18 days of pregnancy, was demonstrated by the occurrence of oestrus following injection of the urine into castrated female rats.

The ovarian follicular hormone is excreted in considerable amounts in the urine of many animals during pregnancy, the actual quantity varying considerably with the animal concerned and the particular stage of pregnancy.

. . . . .

The Thygessen Embryotome

Q. LXVI.—*After using the Thygessen Embryotome I find that the wire saw tends to become twisted and snarled up, and used a second time kinks and breaks. What can be done to straighten it out so that it can be used again without breaking?*

A.—Pre-war embryotomy wire from foreign sources was used almost exclusively and was eminently satisfactory. At the present time a satisfactory wire is not generally obtainable, and bearing in mind the annoyances and difficulties following the breaking of a wire which one is using for the second time, the best advice that can be tendered is that until a satisfactory wire is available, one should not attempt to use a length of wire on a second occasion.

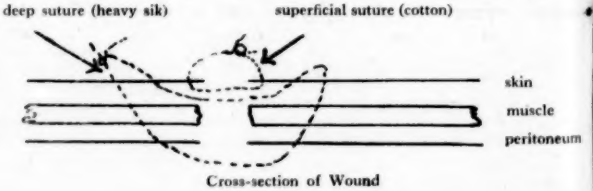
. . . . .

Correspondence

Suturing Abdominal Wounds

Sir,—In the "Questions and Answers" section of the *Record* of February 24th, there is an enquiry from "R. S. T." on the question of suturing abdominal operation wounds.

I have, in a series of about 40 laparatomies, found the following method vastly superior to that usually adopted. I claim no originality for it as I first got the idea from a report in the *Record* of the closure of the abdomen in the cow following Caesarean section. The report was, I think, sent in by Mr. Gold of Redditch. Briefly, the method is to close the wound with a series of "end-on" mattress sutures through all layers as shown in the accompanying diagram, and the skin approximated with



Cross-section of Wound

IN PARLIAMENT

Diseases of Dairy Cattle and the Nation's Milk Supply

House of Lords Debate

The full-dress debate on the above subject which took place in the House of Lords on Wednesday of last week, on the motion of Lord Bledisloe, undoubtedly represented a significant stage in the campaign, in which the National Veterinary Medical Association has played so prominent a part, for combating the major diseases of dairy cattle with the dual aim of protecting the public health and of increasing the milk supply of the nation.

Viscount Bledisloe asked the Government what steps they were taking with a view to the much-needed augmentation of this country's pure milk output, in the interests of national health and physique; whether they endorsed the view that the prevalence in Great Britain of (apart from tuberculosis) four bovine diseases—namely, mastitis, contagious abortion, sterility and Johne's disease—involved enormous, but avoidable, under-production of milk, estimated by leading veterinary experts at 200,000,000 gallons a year, with an annual loss to dairy farmers (calculated on a pre-war basis) of at least £20,000,000; if so, whether they contemplated any remedial measures, capable of being put into immediate operation. He moved for papers.

In the course of his speech Lord Bledisloe said: Never has Britain had greater reason to be proud of her achievements than she has to-day, and this is true not only of our fighting men in different parts of the world and of those who have taken part in the production of war material, but also, and very particularly, of our farming community. But in one respect there is little ground for national pride. The case that I have to present to your Lordships in regard to our home-produced milk is one of serious gravity. Although I frankly admit that the Ministry of Agriculture has lately given much attention to the subject and adopted certain remedial measures, I submit that in the interests of national health it calls for more drastic and more rapid action on the part of the Government than has yet been taken. Put quite shortly, it is not inaccurate to say that in the matter of the general milk supply, its quality, the individual milk consumption, the milk yield per cow, bovine disease, veterinary treatment and the number and qualifications of our veterinarians, Great Britain compares unfavourably with most of the other civilised countries of the world, including indeed some uncivilised countries such as Germany.

Its unreliability of quality is tacitly admitted by enforced pasteurisation in most of our great centres of population, and its inadequate consumption in the homes of our people is similarly admitted by the much-welcomed State provision of milk to school children, infants and nursing mothers. These, of course, are palliatives. The problem needs to be tackled at its source, which is, in the main, both as regards quality and quantity, animal disease. There is probably no greater obstacle to the attainment of a full measure of robust physical fitness in every class of the community, not in one class of the community only, but throughout the whole community, rich and poor alike, than the inadequate *per capita* consumption of milk, the A1 priority food of the nation. This inadequacy is due, first of all, to its insufficient supply in liquid form, traceable to the relatively small number of our dairy cattle and their low average milk yield. This low yield is in turn due largely to bovine diseases. Of these diseases the five chief ones are mastitis of various types, contagious abortion, sterility, which is perhaps more often a temporary condition than a disease, Johne's disease and tuberculosis.

Tuberculosis, although most talked about, is the least objectionable from a quantitative or milk supply standpoint, for although nearly half the cattle of the country are affected with tuberculosis and react to the tuberculin test, only one half of 1 per cent. yield milk containing bovine tuberculous germs. It would indeed be a serious matter, particularly for our young people, if, as in the United States, all our cattle reacting to the tuberculin test were slaughtered, bearing in mind what a very large proportion provide the milk of the nation. I know quite well that it is held by some medical men that the ingestion of milk containing bovine tuberculosis germs by children, although conveying the risk of cervical and abdominal trouble of a bovine character, immunises them against human tuberculosis. I do not want to delve into that controversy among medical men to-day, but it is perhaps material in considering whether or not we should adopt the more drastic policy operative in the United States. All these diseases are, in the opinion of expert veterinarians, preventable. Their prevalence and their steady increase in recent years are due in no small measure to lack of veterinary supervision and control, the relative paucity of veterinary practitioners, their non-employment by many stock-owners, and the lack of adequate training and professional status of many who engage in veterinary practice. I will refer specifically to each of these diseases later on.

As the Prime Minister recently put it, there is no better investment for the nation than to put milk into babies. He might perhaps have added, provided that it be pure and safe and free from pathogenic germs of both bovine and human origin. It is reasonable to ask to what extent can improved health or physique be traced to increased milk consumption. It is interesting to remember that experiments both in this country and in the United States have shown that an addition of from two-thirds of a pint to one pint of milk daily to the ordinary diet of school children may increase their rate of growth by from 5 to 20 per cent. while markedly improving their general health. Figures have recently been published by the Glasgow Public Health Department which show that children of five and of 13 years of age were taller and heavier in 1943 than children of the same ages before the war. This is attributable, in their view, to the larger consumption of milk, improved bread, and better balanced rations, but mainly to increased consumption of milk. . . . There is, I submit, a growing need for a rapid and substantial increase in the milk output in Great Britain as the result of an increase in our dairy cattle and also for an increased yield per bovine animal. It is material to ask what are the actual milk needs, both basic and optimum, for the physical well-being of our population and what is the gallonage required to raise the present output up to that figure? There are approximately 3,000,000 dairy cattle in Great Britain with an average annual yield of 500 gallons—as I will point out presently, relatively a very low annual yield. The national milk output is therefore about 1,500,000,000. The pre-war *per capita* consumption of milk was 0·45 or less than half a pint per day. It is now 0·58, rather more than half a pint, an increase of 30 per cent. on a very low level. . . . The lowest reasonable target to aim at, I suggest, is three-quarters of a pint a day, or 0·75 of a pint, children and nursing mothers getting rather more. But the highest expert opinion—and I shall be interested to hear what my noble friend Lord Moran says on this subject—appears to favour one pint daily. This, of course, is lower than the consumption in many other countries. On this basis, and on that of the present allocation of liquid supplies, the national consumption should be over 2,000,000,000 gallons per annum, the product of over 1,000,000 additional cows at the present level of yields. That is, of course, one-third increase, and the target at which, I suggest, we ought in this country to aim. It would be considerably less if preventable bovine diseases are in fact prevented. The volume of milk sold off farms in England and Wales has increased during the war by approximately 5 per cent., and our present milk production is obtained from 20 per cent. more cows. The actual yield per cow is therefore lower. This, of course, is due to lack of feeding concentrates—cattle cake and the like.

What is particularly interesting, for the purposes of this debate, is the marked difference in the bovine milk yield and human milk consumption in this country as compared with others. We have, as regards milk yields, very valuable figures furnished by Mr. Lamartine Yates, in the excellent, and, I believe, admittedly accurate, publication, *Food Production in Western Europe*, which was published in 1940. Taking the pre-war average yields in six European countries, the Netherlands stands first with an average of 770 gallons per cow; that is to say, exactly 50 per cent. more than Britain. I may say, in passing, with regard to the Netherlands, that her standard of husbandry is to-day the highest in the world and is steadily improving, or was steadily improving until the country was overrun by the Germans. It was steadily improving every year. I may also mention as regards the Netherlands, that they have 50 per cent. more veterinarians in practice in that country than we have here. Rather remarkable, is it not, that the average milk yield is 50 per cent. more than ours in the Netherlands, and the number of veterinarians is 50 per cent. greater? Next comes Denmark with an average yield per cow of 700 gallons; then Belgium with 680 gallons; Switzerland with 665 gallons; Germany with 550 gallons; Great Britain with anything from 530 to 540 gallons; and, last on the list, France with 400 gallons. I may say with respect to France that it the only Western European country which has a lower average milk yield per cow than Great Britain. And, incidentally, she has the smallest number of veterinarians employed, a number even lower than Great Britain, which comes second lowest on the list.

Taking the milk consumption, the pre-war figures which were published by the League of Nations show that the pre-war liquid milk consumption was highest in Finland. There the average consumption was 2·46 pints a day. That is, by the way, five times the *per capita* consumption in this country. Sweden comes second with a consumption of 1·41 pints; Denmark 1·27 pints (which is over three times the *per capita* milk consumption in Great Britain);

---

interrupted cotton sutures. The "end-on" sutures are of heavy silk. The whole series should be laid before being tied. Your correspondent will find that he can safely have all sutures out in seven to ten days post operative with negligible scarring.

In cats I commonly use fine cotton in suturing muscle layers in flank incisions and find it to be very "quiet" in the tissues.

Yours faithfully,

22, Woking Road, Basingstoke. W. R. Turnbull.
February 25th, 1945.

Norway 1·11 pints (two and a half times our consumption); Switzerland 1·06 pints (which is also about two and a half times our consumption); the United States 1·06 to 1·11 pints; Austria 1 pint (that is twice our consumption); Canada 1 pint (also twice our consumption); Germany 0·72 of a pint (about one and a half times our consumption); the Netherlands 0·70; Belgium 0·46; England and Wales 0·42. I think perhaps it is more accurate to say 0·45 of a pint for England and Wales. There is a difference of opinion on this matter, but I think 0·45 would be a safer figure. Australia has a consumption of 0·39 of a pint, and Italy one of 0·23 of a pint. It is very difficult to get figures from other parts of the British Empire, but New Zealand, where the consumption as I happen to know was much about the same as that in the old country, has during the war increased her consumption to 0·66 of a pint. The rate of consumption in Canada is 0·85 of a pint. During the war, thanks to Government stimulus, the consumption in Great Britain has been put up two places, the consumption having risen from 0·45 or 0·46 of a pint to 0·58 of a pint.

Effect of Disease

Then there comes the important question of the effect of disease on yield, and consequently on human consumption. In November, 1940, a most interesting report on diseases of farm livestock was issued by the Survey Committee of the National Veterinary Medical Association, and in it these words are to be found:—

"The wastage of milk caused by disease among dairy cattle is colossal."

The Committee then go on to refer to what was said by the Committee on Cattle Disease of the Economic Advisory Council in 1934—namely, that the milking life of a dairy cow is only half that which might be expected under ideal conditions. They then make this remarkable statement:—

"Fifty-eight per cent. of all the cows passing out of our herds are disposed of on account of disease."

That, of course, is a very significant and rather alarming statement, because it indicates that it is only a very imprudent owner who looks to the cattle markets of the country for the replenishment of his herd.

I should also like to refer to the Report of the Committee on Veterinary Education, which was published in 1938. That Committee is known as the Loveday Committee, the Chairman of the Committee being Dr. Thomas Loveday, who until recently was Vice-Chancellor of Bristol University. The first Report of the Committee was published in 1938, and, at the request of the Government, a further Report was published about a year ago. In their 1938 Report the Committee stated that the total loss from disease among farm livestock was estimated at £19,000,000 annually, and they went on to say:—

"The losses are attributable in part to modern intensive methods of management and increased traffic in animals, but mainly to a failure to apply known methods for the control of bovine diseases."

I do not think I am letting out any secret when I say that a good many of the animals appearing in our agricultural show-yards are undoubtedly affected by disease. At the present time the Royal Agricultural Society of England are considering whether steps cannot be taken in the near future to prevent the transmission of disease through the medium of their agricultural show.

When we come to cattle diseases, I should like in passing to refer (although it is not very material for the purposes of this debate) to foot-an-mouth disease, and for this reason. Very large numbers of our cattle are slaughtered when outbreaks of foot-and-mouth disease occur, and those numbers were exceptionally large in the years 1940 and 1944. Needless to say, these slaughterings materially reduce the available milk from our herds in this country, and therefore must be reckoned to some extent as a factor in considering proposed remedial measures.

Taking first bovine tuberculosis, there is no accurate estimate of the loss of milk arising from this disease, but the loss to farmers is put at £3,000,000 annually. The incidence of tuberculosis in cattle over the whole country is about 40 per cent., but it varies considerably in different localities. In some areas—for instance, Carnarvon and Ayrshire—there is a high proportion of cattle in attested herds—that is, herds that are free from tuberculosis. In other areas, particularly where the herds are "flying herds," the percentage is nearer 90. This, by the way, indicates the right method of controlling this disease—on an area basis, gradually extending the areas of immunity to the whole country. As I said before, approximately 0·5 per cent. of dairy cattle secrete tubercle bacilli in their milk. It is interesting and significant to note that as regards the incidence of tuberculosis in cattle the United States leads the world, with 0·5 per cent. only, as compared with our 40 per cent., the decrease from 5 per cent. to 0·5 per cent. in 1917 being due to the slaughter of all infected cattle and the education of stock owners in regard to additions to their herds. The figure for Canada is about 2 per cent., and for New Zealand about 4·5 per cent. The incidence of bovine tuberculosis in Switzerland, the Netherlands, Denmark, Belgium, France and Britain varies from 20 down to 40 per cent., Britain being at the bottom of the list.

In passing, I may say that the Veterinary Service of the Ministry of Agriculture has done extraordinarily good work in keeping our country almost free from the serious notifiable diseases of cattle plague, pleuro-pneumonia and foot-and-mouth disease. They, your Lordships will remember, were the sole origin of the old Board of Agriculture. The reason why a Department of Agriculture was set up in this country was the prevalence in the year 1886 (I think it was) of these three devastating diseases, two of which have entirely disappeared from this country, while the third, foot-and-mouth disease, is kept under control. But for the efficiency of the official Veterinary Service of the Ministry of Agriculture, the milk situation would be far more serious than it is, and intensive dairy farming would be quite impossible. Relatively little, however, has yet been done as regards other diseases. Advanced cases of tuberculosis are dealt with under the Tuberculosis Order, and farmers are encouraged—not compelled—to use the tuberculin test, but the general incidence of tuberculosis in our herds has been hardly affected during the last 20 years. On January 31st last, out of 152,000 herds of dairy cattle in Great Britain the number of attested herds—that is, herds certified to be entirely free from tuberculosis—was 17,185, that is, one in nine. In the United States, bovine tuberculosis has been eliminated through energetic prosecution of a nation-wide scheme based on tuberculin testing, the slaughter of reactors, and payment of full compensation to the farmers. We might well embark on a similar scheme on an area basis, making the tuberculin test compulsory and controlling cattle breeding, and all new purchases and the marketing in those areas, gradually extending them to cover the whole country.

But although relatively little has been done by our Government to eradicate tuberculosis, still less has been done in the case of the other four diseases specified in my Motion, and the losses due to these are far more serious. According to the National Veterinary Medical Association, the monetary loss from these is at least £20,000,000 per annum, and the loss of milk yield about 200,000,000 gallons; and, unfortunately, all these four diseases are on the increase. It is estimated that 25 per cent. of Britain's dairy cattle suffer from one or other forms of mastitis, and 40 per cent. from contagious abortion. The prevalence of these diseases is attributed partly to modern intensive methods of management, carelessness in the use of milking machines—which, of course, is steadily on the increase—and increased traffic in animals, but mainly to failure to apply known methods to the control of these diseases.

It is recommended in the case of mastitis that there should be regular quarterly routine examinations by skilled veterinarians of all dairy cows to facilitate the early detection and treatment of these diseases, the farmer also using the strip cup test. In the case of contagious abortion area eradication, coupled with the preventive inoculation with the new vaccine, a most valuable discovery in recent years, of all young calves and heifers is advocated. Your Lordships probably know that in former times there was a test both of live germs and of dead germs to discover the presence in bovine animals of contagious abortion. Now, fortunately, there has been discovered a very effective cure if young heifers or calves are inoculated with this new vaccine. In the case of temporary sterility, which for this purpose is described as a disease, there is said to be 100,000,000 gallons of milk lost every year from this cause alone. What is advocated there is accurate herd records being kept by every stock owner and furnished to the veterinary practitioner, who should carry out regular periodic examinations of every breeding animal and, where necessary, apply treatment. As regards Johne's disease, this is seriously prevalent in certain areas, but is not widespread over the country, and what is suggested there as suitable practice is herd testing with johnin of approved potency, and the segregation of all reacting cattle, clinically affected animals being slaughtered, and contaminated pastures being freed from all stock for at least twelve months.

Coming to the actual remedial measures which have been taken by the Ministry of Agriculture, or rather with the approval of the Ministry of Agriculture, none is proving more effective than what is called the panel scheme. By arrangement between the National Veterinary Medical Association and the National Farmers' Union, with the full approval and encouragement of the Ministry of Agriculture, this scheme has been in operation since June 1st, 1942, and under it the local veterinary practitioner may contract with a farmer for the control of these four specified diseases at an annual fee of approximately 10s. per cow and 2s. 6d. per heifer, certain vaccines and other products being supplied free by the Ministry of Agriculture for those working the scheme, and every herd being subjected to veterinary inspection at least once a quarter. On January 31st last there were 6,961 herds under the scheme in England and Wales and 307 in Scotland. These comprise 191,336 cows and 104,314 heifers. That is a total of 295,650 cattle or roughly 10 per cent. of the total dairy cattle of the country. This scheme, although it has not made the headway that was hoped, has undoubtedly done real good, and most of the farmers who entered it originally have renewed their contracts. Others not entering the scheme have developed confidence in the advantage of veterinary inspection of their herds, which did not previously exist.

Now I come to the last point, which is perhaps in some senses the most material, and that is the shortage of veterinarians in practice in this country. The shortage of veterinary personnel has limited the wider extension of this scheme, as also the lack of adequate knowledge on the part of some of the veterinary practitioners. In this connection the reports of the Loveday Committee on Veterinary Education in Great Britain, first published in 1938 and secondly in April last, are most instructive and significant. Their second Report, which was called for by the Ministry of Agriculture, contains the following paragraph:—

"Recent estimates put the annual loss to the nation in livestock and livestock products due to animal diseases at not less than £30,000,000. The bulk of this loss is believed to be ultimately preventable, but only if expenditure on veterinary training on a considerably greater scale than at present is incurred."

They then set out their scheme, providing for an annual output of 220 veterinary graduates, not only from the existing schools at London, Edinburgh, Glasgow and Liverpool, but also at Cambridge and Bristol.

They recommended *inter alia* that veterinary study should be given full university status, and that unqualified veterinary practice should be the subject of a special enquiry. I understand that special enquiry has recently taken place and the Report of the Committee of Enquiry recommends that no person should be allowed to treat animals for profit unless he has previously qualified on the register of the Royal College of Veterinary Surgeons, but that unqualified persons who have treated animals as their livelihood for a minimum period of seven years out of the last ten are to be admitted to a special register, subject to certain conditions, and allowed to continue in practice. The Loveday Report also strongly advocated veterinary research in all centres of veterinary training. They put the capital expenditure involved in the adoption of their scheme at £2,000,000, with an annual outlay of £210,000. I would venture strongly to urge the early adoption by the Government of the recommendations of this Loveday Report. The Report, by the way, was published exactly a year ago.

One very remarkable part of the Loveday Report is the reference that it makes to the relative number of veterinarians employed in different European countries. I will not trouble your Lordships with the various figures, except to tell you that the Report contains a schedule setting out the total number of veterinary surgeons, then the number per million of population and, what is most important, the number of veterinary surgeons per million of the larger domestic animals. In this schedule Switzerland comes first, Belgium comes second, Germany and Czechoslovakia are bracketed third, Denmark fifth, the Netherlands sixth, Norway seventh, Great Britain eighth and France ninth. The only country other than Britain which has less than 100 veterinary surgeons per million of the larger domesticated animals is France, and this is the only one of the Western European countries which has an average milk yield per cow lower than ours. This has a significant bearing surely upon the relation between milk yield and veterinary supervision or control.

May I just mention that two recent announcements have been made which bear upon this subject? Both of them I warmly welcome, as I am sure other stock owners must do. First of all, a mission is being sent to the United States and to Canada to enquire into the prevalence of cattle diseases in both countries and the steps there taken to eradicate them or keep them under control. Secondly, an announcement was made only during the last few days to the effect that the Ministry of Agriculture are proposing to issue a special licence for bulls with a good milk record behind them. Of course, all stock holders are aware that the bull is more than half the herd, and that in order to promote a larger milk yield you have to look to the female ancestry of the bull rather than to any other factor.

I am going to suggest, before sitting down, the steps that seem to me to be desirable for a wise and far-sighted Government to take to augment rapidly the supplies of pure disease-free milk in this country. First of all, a proper survey of the incidence of disease throughout the country. Secondly, increasing the bonus given for milk from attested herds—that is, herds completely free from tuberculosis, as far as is known, and, as far as is known, from other preventable diseases—and an intimation that within a fixed period of, say, five or ten years, milk from herds which are not clear from tuberculosis and other preventable diseases will not be accepted for human consumption. Thirdly, establishing a free State veterinary service; and I want to say, in support of that, I believe it to be one of the finest and most remunerative investments that the country could embark upon, bearing in mind the amount of serious human morbidity which is due, directly or indirectly, either to the scarcity of milk or to the prevalence of diseased germs in the milk. Fourthly, marking cows eliminated from attested herds so that they cannot be sold into other herds and so spread diseases without the purchaser knowing that the animals are affected. Fifthly, there must be compulsory vaccination of calves against contagious abortion. Sixthly, there should be a compulsory health service for cattle instead of the present voluntary panel scheme. Seventhly, disease-free areas should be established and gradually extended until they comprise the whole country. Eighthly and lastly, the establishment of a State abattoir service under veterinary supervision as in most other progressive countries. The production and control of milk should be brought under direct supervision of the Animal Health Division of the Ministry of Agriculture. This would materially facilitate the early diagnosis of disease. I must apologise for taking up so much of your Lordships' time. I have reason to believe that both Government Departments who are interested in and responsible for the right milk policy to-day are in complete agreement or certainly a greater measure of agreement than they ever have been in the past. But in the vital interests of national health and physique, more drastic measures are needed, I submit, and a more definite objective and far more haste in adopting practical measures for its achievement. I beg to move for Papers.

Lord Cranworth said that we must look to it to see how we could reduce any possible wastage and thereby decrease the cost of milk production. Among the causes of wastage quite clearly disease was the worst; and there was no doubt also that disease was rife in the country, and not only rife but was increasing.

The noble Viscount had stated that four diseases alone caused a loss of upwards of £20,000,000 and 200,000,000 gallons of milk. He was always rather suspicious of figures which ended with six noughts. There always seemed to be a temptation to add another nought to make one's flesh creep, but in this case he had little doubt that the figure was a conservative one and he would accept it very gladly. He believed the adage that prevention is better than cure had a certain amount of sense in it. Therefore they should look to the causes of this vast loss which arises from disease. Here he would suggest that by far the greatest cause of disease in this country was the disgraceful housing conditions in which our cows in many parts have to live and be milked and produce their calves.

The first and most important thing was to give the farmer and the farmer-owner the means, and when they had the means they should be forced to provide proper housing accommodation for their stock.

Secondly, the veterinary services should be increased and made more readily available. Efforts should also be made to induce the veterinary services to work more closely with the practical farmer. When this had been done the Government might consider imposing a measure of compulsion.

The Earl of Iveagh recalled that barely ten years ago mastitis was regarded as an "act of God." He did believe that there were the possibilities of great returns for the nation if it would put its house in order. The most important thing was to get more accommodation for the training of veterinary surgeons. They must also press on with a continuous effort to investigate all the problems relating to milk production and the feeding of cattle. Attention to these matters would enable the average production per cow to rise. He therefore pressed the Government to give them some encouragement to believe that this matter would be taken up.

The Duke of Norfolk, Joint Parliamentary Secretary, Ministry of Agriculture, said that milk production had the highest priority of any food in the country to-day; the cow had the first call on any feeding-stuff that might be available. Under the four-year plan farmers had a guaranteed minimum market, and the promise of guaranteed purchase for all milk produced up to 1948. The milk-recording scheme had been reinstated, and it was hoped that greater attention would be given to the better breeding of calves. Artificial insemination was going ahead, and that should help the small dairy farmer. Milk delivered off the farms during the last six months was 12 per cent. more than it was in the corresponding months of 1939-40.

Wherever possible steps had been taken to maintain the cleanliness and purity of milk. We had some 17,000 attested herds with about 635,000 cattle, and the milk produced by 83 per cent. of all producers was tested every fortnight. The proportion, in the case of the producer-wholesalers, was 92 per cent., and although efforts were being made to get at the other 8 per cent. the small dairies caused difficulty. Every effort was also made to contact the producer-retailers; whereas only 16 per cent. were tested in 1945, the figure was now over 37 per cent. In December last half as much milk was rejected as dirty as the amount in December, 1943. "C" producers, who produced the lowest quality milk, had been reduced in the same period from 5·5 per cent. to 3·7 per cent.

Ministry Measures

It might be some time before they could get the number of veterinary surgeons required.

"As to the new measures which we have introduced recently," proceeded the Duke of Norfolk, "I will mention three. They include the scheme for the control of diseases of dairy cattle, the scheme for the vaccination of calves against contagious abortion, and the provision of expert assistance to veterinary surgeons on sterility problems. Let me say a word on each. The first, the scheme for the control of diseases of dairy cattle, which is spon-

sored jointly by the Minister, the National Farmers' Union and the National Veterinary Medical Association, came into operation in England in June, 1942. A similar scheme was introduced in Scotland a few months later. I would like to emphasise that the scheme is a voluntary one. The essence of it is that an undertaking is entered into between a farmer and his veterinary surgeon under which each agrees to play his part in carrying out approved methods of control of mastitis, contagious abortion, sterility and Johne's disease. The veterinary surgeon undertakes to examine the herd at least four times a year at intervals of approximately three months. He is paid at a flat rate in the neighbourhood of 10s. a cow. The Ministry provides free laboratory diagnosis where necessary, free abortion vaccine, and at a very low price an expensive drug, sulphanilamide, for the treatment of certain forms of mastitis. As a result of this we have at present some 7,250 herds comprising about 300,000 cows and heifers under the scheme. But the shortage of veterinary surgeons has again made this a very difficult matter and many farmers who undoubtedly would have taken up the scheme have not been able to do so because the veterinaries could not undertake any extra work. Therefore the success of the scheme should not be taken purely on the figures I have given. It is probably true that as a result of propaganda farmers as a whole have begun to take a quite different view about the control of disease as compared with their view a short time ago, and there are probably as many people meeting with success outside the scheme as there are actually within it.

"The second scheme is that for vaccination of calves against contagious abortion. This scheme was introduced at the end of 1944. Under it the Ministry undertakes to vaccinate heifer calves in the herd of any registered milk producer for the low charge of 1s. per calf. Heifer calves of four months old and upwards and maiden heifers up to two months before service are eligible for vaccination under this scheme. The vaccination of calves is carried out on the occasion of each routine veterinary inspection of the dairy herd and when the veterinary inspector is on the spot for that service. That is very important because it would be impossible under present conditions to undertake the vaccination of large numbers of calves if special visits had to be made. Unfortunately, owing to an unavoidable mishap shortly after this scheme was introduced, we have not been able to supply the whole of the very considerable demand for the vaccine. We have therefore had to curtail this scheme for the moment and give special priority to bulling heifers. The matter is, however, in hand and we hope that before long it may be possible to restore fully the amount of vaccine required. We hope it will be possible at a later date to include all herds in the scheme.

"As regards sterility, the services of a team of sterility advisory officers working under the guidance of the Director of the Ministry's veterinary laboratory at Weybridge have for some time past been available to veterinary surgeons who wish to consult them about sterility problems. I think this body was mentioned earlier by my noble friend. These officers have received special training in modern methods of diagnosing and treating sterility and temporary infertility. Since the summer of 1941 county war agricultural executive committees have been encouraging farmers to cull their herds and in particular to realise the wisdom and advantage of disposing of animals that are suffering from disease which is not likely to be readily susceptible to treatment. It is best that the better cows should be kept and that diseased animals should be got rid of unless there is some chance of a very quick recovery. This has been carried out mostly by means of persuasion but the committees also have been empowered to make an order for slaughter. But at this period of the war that power is not very widely used and is only resorted to in very bad cases. During the last winter the increase in the slaughter of cows has risen by 29 per cent. I think it is interesting to note that the December 4th returns showed a small decline in the dairy herds but a slight increase in the number of heifers coming forward as replacements. As a result milk production has increased. All this proves that the schemes have not only been a success, but that there has been a general rise in the standard of management.

Tribute to the Veterinary Service

"Noble Lords who spoke this morning made reference to the veterinary surgeons, and I, for my part, should like to pay a small tribute to the work done by the veterinary service. I am sure that they themselves will welcome the remarks which noble Lords made. Reference was also made by noble Lords to the Loveday Report, and I would like to make one comment upon it. The essence of the Report of the Loveday Committee on Veterinary Education is that certain universities should take a much larger part in the training of veterinary surgeons. The proposals made about this are now under consideration by the Royal College of Veterinary Surgeons, the universities and two Agricultural Departments. I understand that certain particular proposals are to be laid before the Council of the Royal College by their representatives at their quarterly meeting, which is being held this week. It is hoped that this will carry matters a further important stage towards the preparation of legislation to give effect to the main Loveday proposals.

"I hope that I have given a reasonably satisfactory reply to my noble friend in answer to his Motion. I would like him to know that in the Department where I have the honour to serve there is no complacency whatever on this question of milk. My right hon. friend the Minister of Agriculture, and all who work with him, are fully alive to the importance of disease and the loss sustained from it. They, no less than he, desire to see disease reduced as far as possible, as time goes on, and when more material and labour are available after the war. I think that all of us will agree that a lot has still to be done. I assure my noble friend that the Government fully intend to do what they can to see that the health of this nation is not harmed because of disease among the cattle in this country."

Lord Addison said that the efforts that had been made to improve milk production had had remarkable results. Among the most efficient things which had been done was the encouragement of better selection of animals and the use of sires from cows with a good milk record, and, above all, the regular visitation and advice given to the more backward producers. But at present there was not a sufficient supply of veterinary surgeons. An adequate supply of properly trained veterinary surgeons would not be obtained unless a great extension of our veterinary colleges was undertaken and proper remuneration given to their staffs. A great deal depended on the Agricultural Research Council, and he hoped that the Government would be as generous to them as they had been to the Medical Research Council.

Lord Moran said that the case for milk as a keystone of national nutrition had been stated on many occasions. The national milk scheme, a wise measure on the part of the Government, must not be dropped after the war; it must become permanent. In addition every adult should be able at any rate to get a pint of milk a day if possible. Drinking milk was a habit, and it was best established in the youthful stage. Whether the consumer "played" or not would be decided on who paid for the milk. Would the consumer be willing to buy milk in competition with other foods at market prices, and would the Ministries concerned be willing to go on with the subsidies? The answers to these questions would partly depend on whether there was full employment and whether there were children's allowances.

He hoped that the housing question would not be used as a pretext for saying nothing could be done by way of getting more and purer milk until building was seen to. Far more important than the housing question were the conditions under which the farmer and his farm hands worked. Theirs was one of the few remaining occupations in which one worked all day and every day. If the seven-day week was continued it might be found in 20 years' time that all the most vigorous and intelligent elements would have gone out of the industry, and that would be reflected in a greatly diminished milk yield. There must be more education of the farmer and of the men who worked under him. There were fewer than 50 people engaged in dairy research in England and Wales. That was utterly wrong. We were coming to a time when the future of the industry would be largely governed by the quality of the research put into it.

Milk recording must be universal. We must sell milk by its nutritive value and not by volume. There must be a lot more of research on feeding-stuffs to see how they affected the yield of milk. He wanted pasteurisation only as a complementary process. Milk in future must be sold either from herds free from disease or it must be pasteurised. If it was sold and bottled on a farm where there was no disease then pasteurisation would die a natural death. At present we had to continue with that process. If we could arrange that milk was sold to everyone who wanted it at a price the buyers could afford, and if that milk was pure, we would go a long way towards safeguarding the future health of the nation and, incidentally, the future of British agriculture.

The Earl of Warwick said that they had been told that one of the principal purposes of the Ministry of Agriculture was the production of more milk and if the Report on diseases of livestock prepared by the Survey Committee of the National Veterinary Medical Association was correct, in its estimate of £20,000,000 lost by disease, which he did not think was an exaggeration, then he was quite sure that their Lordships would agree that this was a very important matter for investigation, particularly as, travelling around the country, he had been assured by many veterinary surgeons of his acquaintance that 80 per cent. of this disease could be dealt with if the conditions of buildings, farm education, and the general conditions of management, could be suitably improved.

He urged that in taking steps to increase milk production care should be taken not to overstrain the cows. He hoped that the Government would be able to achieve a non-political compromise on this matter of milk production.

Lord Geddes said that mastitis was becoming more and more a scourge. It did not appear that research mainly from a bacteriological angle had got very near to the heart of the problem. He

thought that the nutritional side was perhaps just as important, or even more important, than the bacterial side. It was known that if the mineral contents of the soil were right there would be a high degree of resistance to bacterial invasion, which constituted positive health. As much cleanliness as possible was needed, but this problem should be looked at more from the point of view of the resistance of the animal to disease—the positive rather than the negative side. This point of view had been almost entirely overlooked in the studies of mastitis in milking cows, and he suggested there was now an opportunity for a completely new approach to this problem.

Earl De La Warr said he could not agree that animal disease had increased. Because of more scientific inspection, diseases were being brought more to light. The desirability of the team spirit in research was fully recognised by the Agricultural Research Council, which was trying to bring together at conferences research workers from all parts of the country. The Ministry of Agriculture should put up a detailed form of cowshed drill to minimise the risk of disease. Enormous as was the field of research which lay ahead, the first problem was to apply the knowledge we already had.

Lord Glentanar said that the increase in disease coincided with the great development in mass production and mechanical methods, in steps greatly to increase the yield of the individual cow, and in the encouragement of cows of enormous yields by prizes, and so forth, and especially by selective breeding from high producers. In the long run increased continuous milk production for human needs could only be safely secured by maintaining a relatively larger number of cows in health through a normal life period.

Lord Teviot hoped that any future tests and investigations would be on a wider and broader scale, and that they would be field tests and not so much laboratory tests. The latter were no good at all, judging by results. Milk was a most dangerous food, therefore they must see to it that milk contacted with the air as little as possible. An eminent physician had told him that milk bars as they were now conducted spread disease more than anything else. He kept his cows in the open in all weathers, and only brought them in at milking time. They were free from disease.

Government Reply

The Earl of Listowel, Under-Secretary for India, said that nothing would do more to raise the national standard of physical fitness in this country than a further increase in the consumption of milk. During the war the average quantity consumed daily a head of the population had risen from about two-fifths of a pint to about two-thirds of a pint. But this advance, creditable as it was to all concerned, only took them part of the way. They could not be satisfied until they had reached an average consumption of at least one pint a head.

The Government desired to protect the public from unclean milk, and they were vividly aware of the illness and deformity which could be traced to this source. They hoped in time to improve very considerably on their present record in dealing with the problem. Under the Food and Drugs Act, 1944, administrative responsibility for the existing law in regard to the hygienic production of food would pass in due course from the public health authorities into the hands of the Ministry of Agriculture. This would make possible the enforcement throughout the country of a uniform standard of dairy farming and might be expected to reduce still further the serious loss of milk supply. But this could not be brought into operation in the near future. It would require an increase in the staffs of the Ministry and a considerable addition to the number of veterinary surgeons and sanitary inspectors. The end of the European war would not lead to an immediate alleviation, because many veterinary surgeons would be required in the services in the Far East.

The Earl of Listowel continued: "I now pass to the even more important and anxious problem of dangerous milk. Available statistics do not expose the whole extent to which public health has already been undermined. But a committee of the Medical Research Council on Tuberculosis in War-time sounded a grave warning in a Report published in 1942. I should like, if I may, to read to your Lordships just two extracts from this remarkable Report: the first to illustrate how widespread tuberculous infection is among cattle; the second to show the sad toll it has already taken in child health. The first of these two extracts is as follows:—

"According to information available before the present war an average of about 40 per cent. of cattle throughout the country react to the tuberculin test, showing that they have come in contact with the tubercle bacillus. The inference that practically all bulked milk, representing milk of 20 or more herds, must be infected, has been shown by different observers to be correct."

The second extract reads as follows:—

"It must therefore be realised that a considerable proportion of our milk supply is, and will continue to be, infected with tubercle bacilli. The danger of such milk, specially for children, has been pointed out by numerous medical organisations, and the Cattle Disease Committee has estimated that in 1931 about 2,000 human deaths in England and Wales were due to this cause."

But, of course, the death-rate does not, by itself, give any real indication of the ravages of non-pulmonary tuberculosis, which is not a killing disease. We do not know, we have no idea, how many children have grown into hunchbacks and cripples from this cause, but the number must be very considerable. And the ill effects on the health of the public do not stop at this point. We must not forget the infectious diseases of human, not bovine, origin, carried into many homes by germs that reach the milk from those who have handled it before it gets to the consumer. Again, we do not know the full extent of the infections transmitted in this way. But we do know for certain that there were 113 outbreaks of epidemic milk-borne disease, affecting 14,000 people in this country between 1913 and 1937.

I am most anxious that this debate should bring out the plain fact, lamentable though this may be, that an appreciable portion of our dairy cattle are infected with disease and that extensive damage has already been done to the health and efficiency of thousands of people, mainly in the rising generation, whose welfare we should have most at heart. Unless these elementary facts are constantly in the public mind, the Government will lack the support they need for effective action. The Government have been deeply impressed by the seriousness of the problem of infected milk, and they are already applying several well-known methods to eradicate this grave evil. No one method taken alone, such as the testing of milking herds for symptoms of tuberculosis or undulant fever, can possibly be sufficient to cover all the numerous and widely separated sources of milk supply. Those who advocate the use of one method only, such as the testing of milking herds, should remember that this is a long-term policy that will not meet our immediate needs, and that it does not, and can never, even in the remotest future, touch milk-borne infections of human origin.

"It follows from this that the most effective prophylactic method at present devised is that which attacks the disease-carrying germ not in the animal but in the product. The Ministry of Health have long taken the view that adequate heat treatment of milk is desirable in a widely extended form. A recommendation in this sense was made as long ago as 1934 by the Cattle Diseases Committee of the Economic Advisory Council. That Committee recommended that large towns should have powers to prohibit the sale in their areas of any but certain innocuous classes of milk. A provision to give effect to this proposal was included in the Milk Industry Bill of 1938, but this Bill was dropped owing to opposition on a number of different grounds. The urgent need for more pasteurisation was emphasised again during the war, in 1942, by the Committee of the Medical Research Council to which I have already referred."

It could be fairly claimed that the quantity of milk being heat treated in existing plants was likely to be considerably increased with the introduction of the heat-treating allowance. That was a solid inducement and was already producing results. The Ministry of Health was satisfied, after very careful enquiry, that heat treatment properly carried out destroyed the germs without materially affecting the nutritive quality of milk, and it was clearly in that direction that the stamping out of milk-borne diseases must travel.

The motion was, by leave, withdrawn.

TUBERCULOSIS ERADICATION IN THE U.S.A.

It required 24 years, upwards of 60,000,000 dollars, and a large force of accredited veterinarians practically to wipe out bovine tuberculosis in the United States, that is, to reduce the incidence of that disease down to a negligible percentage of the total cattle population. The task was started in 1917 and ended in 1941. The results in 1944 can be computed in terms of increased number of dairy cows (27 million of milking age), increased production of milk per cow, increased consumption of milk and milk products *per capita* of American people, prosperous dairy farmers, and less tuberculosis among children.

The eradication of bovine tuberculosis in the United States was made possible through large scale demonstrations by Dr. D. F. Luckey, State veterinarian of Missouri (retired), which proved that intracutaneous tuberculinisation was an exact diagnostic test in cattle and therefore applicable to a campaign for nation-wide extermination of the disease. The original tuberculin test required the taking of numerous temperatures of the animals before and after making the tuberculin injection. This was costly, time-consuming and impracticable among the intractable cattle of the ranges and feedlots. In short, the eradication of bovine tuberculosis in the United States could not have been achieved but for the utilisation of the intracutaneous tuberculin test. Recognising his contribution to the national welfare, Dr. Luckey was awarded the Twelfth International Veterinary Congress Prize at the 81st annual meeting of the American Veterinary Medical Association in Chicago, August 21st to 24th, 1944, an award granted annually for meritorious work in the field of veterinary medicine.—*Proceedings*, 81st annual meeting, American Veterinary Medical Association.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

April 25th.—N.V.M.A. Sub-committee on First Aid Handbook, 36, Gordon Square, W.C.1, 2.30 p.m.

April 26th.—N.V.M.A. Committees at 36, Gordon Square, W.C.1: Loveday Report, 10 a.m.; Finance and General Purposes, 12 noon; Joint Veterinary Officers and Public Health and Parliamentary, 3 p.m.

April 27th.—N.V.M.A. Organising Committee, 36, Gordon Square, W.C.1, 10 a.m.; **Meeting of Council, N.V.M.A.**, at Friends' House, Euston Road, N.W.1, 11 a.m.

April 27th.—Meeting of the Yorkshire Division, N.V.M.A., at the University, Leeds, 3 p.m.

April 27th.—Meeting of the Royal Counties Division, N.V.M.A., at Reading (Caversham Bridge Hotel), 2.15 p.m.

April 28th.—Annual General Meeting of the Association of Veterinary Inspectors, Royal Hotel, Woburn Place (Russell Square), W.C.1, 2 p.m.

May 3rd.—Meeting of the Central Veterinary Society, at Conway Hall, W.C.1, 2 p.m.

May 4th.—Meeting of the Lancashire Division, N.V.M.A., at the University of Liverpool, 2.30 p.m.

May 8th.—R.C.V.S. Council Elections—last day for nominations.

May 22nd.—R.C.V.S. Council Election—Voting Papers issued.

May 29th.—R.C.V.S. Council Election—Voting Papers to be returned.

June 5th.—R.C.V.S. Annual General Meeting.

June 6th.—R.C.V.S. Committee and Council Meetings.

* * * * *

Future Meeting

Sir Daniel Cabot, Chief Veterinary Officer of the Ministry of Agriculture and Fisheries, is to address a meeting of the Lancashire Veterinary Association on Friday, May 4th. The subject of the address will be "Foot-and-Mouth Disease."

The meeting will be held in the Lecture Theatre of the Department of Geology, University of Liverpool (entrance, Brownlow Street), and will commence at 2.30 p.m. A cordial invitation is extended to all members of the profession who may wish to attend as visitors.

* * * * *

R.C.V.S. Council Election

Addresses of Candidates

The addresses of candidates for election to Council, R.C.V.S., will be published in our issue of May 19th. Those who desire to submit such addresses are requested to note that the closing date for their receipt (by the Editorial Representative, N.V.M.A., 36, Gordon Square, London, W.C.1) is Monday, May 7th, and that they must be limited to 250 words.

* * * * *

The following additional nominations for election to Council, R.C.V.S., have been made:—

H. Scott Dunn, Hove. Proposed by J. McCunn and Frank Chambers.

D. S. Rabagliati, Edinburgh. Proposed by Wm. Mitchell and J. W. McIntosh.

Herbert Gillmor, Ayr. Proposed by J. W. Emslie and J. W. McIntosh.

* * * * *

PERSONAL

University College of Wales

Mr. T. R. Thomas, M.R.C.V.S., of Carmarthen, has been appointed Consulting Veterinary Surgeon to the Department of Animal Health. Other appointments are those of Mr. Alan W. Davies, formerly of the Dunn Nutritional Laboratory (University of Cambridge and Medical Research Council), as Research Assistant in the Department, and of Mr. John E. Lewis, DIP.AGRIC. (Wales), formerly Grassland Officer of the Buckinghamshire W.A.E.C., as Farm Manager at Pantyrhuad and Research Assistant in the Department.

Births.—Barron.—On March 30th, 1945, to Betty (*née* Richards), wife of N. S. Barron, M.R.C.V.S., PH.D., B.SC., at the Hill Nursing Home, Reading—a son.

Buckingham.—On March 29th, 1945, to Ruth, wife of J. L. Buckingham, M.R.C.V.S., 29, Benyon Street, Castlefields, Shrewsbury—a son.

Marriage.—Beament—Bailey.—On April 11th, 1945, at Fore Street Methodist Church, Camelford, Cornwall, by the Rev. M. Slade, B.A., Robert A. Beament, B.SC., M.R.C.V.S., only son of Mr. and Mrs. A. E. Beament, of Leighton Buzzard, Beds., to Joan A. Bailey, S.R.N., niece of Mr. W. Stacy, of Camelford, Cornwall.

* * * * *

R.C.V.S. OBITUARY

Malvisi, Charles A., 70, Tottenham Lane, Hornsey, London, N.8. Graduated London, May 15th, 1889. Died April 1st, 1945.

Phipps, E. Augustus, Capt. late R.A.V.C., Broadview, Mallow, Co. Cork, Eire. Graduated Dublin, December 13th, 1906. Died March 6th, 1945; aged 65 years.

. . . . .

The Late Mr. Geo. Frederick Gould, M.R.C.V.S.

Mr. George Frederick Gould, M.R.C.V.S., of Basingstoke, whose death at the age of 79 years we recorded with much regret in our last issue, was the second of a line of veterinary surgeons associated with the family practice at Southampton, his father having been George James Gould, M.R.C.V.S., who, qualifying in 1865, established the practice in that town and in the New Forest area, being Veterinary Surgeon to Queen Victoria at Carisbrooke in the Isle of Wight. Mr. Geo. F. Gould, who carried on the practice on his father's death in 1904, was an able and conscientious veterinarian who gained a considerable reputation in what has been termed "the golden age of horse practice," being very well known and much respected locally. He retired from practice in 1937 and from that time onwards lived at Basingstoke.

. . . . .

The Late Mr. L. M. Magee, M.R.C.V.S.

An Appreciation

The news of the death of Louis Magee, recorded in your last issue, will have been received with the deepest regret by his many friends and admirers and chiefly by his colleagues in the veterinary profession, of which he was such a prominent and zealous member.

The son of a Dublin merchant, he was educated at Clongowes Wood College where he and his brothers were famed for their prowess in athletic sports and outdoor games. After leaving school he studied architecture with the intention of making it his profession, but after a while abandoned the idea and became apprenticed to the well-known Dublin veterinary surgeon, the late Mr. James McKenny, from whom he acquired much of the skill which he afterwards displayed as a distinguished practitioner. His successful career in the profession affords an example of the wisdom of students serving a pupilage with a practitioner, even before entering a veterinary college, and an instance of a city reared boy attaining eminence in general veterinary practice.

He joined the "Dick" Veterinary College but afterwards transferred to the London College where he qualified in 1902. On receiving his diploma he was appointed the first hospital surgeon at the Dublin Veterinary College, which was then in its early infancy. He was one of those present at the State opening of the College in that year by the Lord Lieutenant of Ireland.

His next move was to launch into country practice and we all know what an ardent exponent of it he became. He excelled as a surgeon and even in his early days he did not hesitate to undertake major operations. He was deeply interested in every phase of veterinary practice and was always eager to acquire knowledge from and impart knowledge to his confrères. He corresponded on veterinary matters with several eminent veterinarians, including the late Wallis Hoare, Hobday, and David Imrie, and availed himself of every opportunity to pick the brains of those from whom he expected to gain information on professional topics. There was nothing he liked better than to demonstrate his methods, exhibit specimens, relate his experiences, and confess his mistakes at Veterinary Association meetings, with a view to promote discussion on matters of general interest to the profession and for the purpose of warning others of the pitfalls to be met with in veterinary practice. He never failed to respond to a request to provide material for a meeting or to fill a gap when required; his remarks, being interspersed with humour, were always entertaining as well as instructive. He delighted in the company of students and in giving them fatherly advice in a jocose way.

Notwithstanding his eminence as a veterinary surgeon, Louis Magee was more eminent in the world of sport, featuring as an international contestant in the 220 yards and holding a unique position in the realm of rugby football, having represented Ireland in twenty-seven international matches and captained the Irish team when it won the triple crown in 1899. The writer has a vivid recollection of his appearance in the match against Scotland at Inverleith in that year, when his brilliant play electrified the spectators and mesmerised his opponents. It may be truly said that

he was the hero of every match in which he played. He was aptly referred to by a Dublin contemporary journalist as "our pocket Hercules," being of diminutive stature but playing a herculean game in attack and defence. He was a master of the fine points of the game, having marvellous hands, great speed and a baffling swerve and side step. He has been described as the best half back of all time. He accepted an invitation to play in the British team which toured South Africa during his playing career.

When he retired as a player he continued to take a keen interest in the game and often contributed articles to the Press on various aspects of the rugby code. He looked upon it as his special privilege to referee the Wooldridge Cup match played at Dublin between the London and Dublin Veterinary Colleges, while his post-prandial speech at the subsequent festivities was always interesting and enjoyable.

His life was an exemplary one of hard, unselfish work.

He leaves a widow and grown-up family, one of whom, Mr. Bryan Magee, M.R.C.V.S., succeeds to his practice.

J. J. O'C.

* * * * *

GENERAL OBITUARY

Sir Walter Gilbey

In the death of Sir Walter Gilbey, at the age of 85 years, the profession will feel a deep sense of loss in that, to its members, he was not only one who was a prominent figure in the horse-breeding and sporting worlds, but a social leader who gladly had given practical support and the aid of his great influence to the scheme adequately to equip and endow, through the medium of public subscription, the Royal Veterinary College and Hospital. At the meeting of Press representatives convened by him, to this end, in 1935, his enthusiastic co-operation with the profession in this matter was voiced in the words, "It is naturally our desire that in London there should be situated the foremost veterinary school in the world." The teaching of riding and horsemanship to the youth of the country—and, it should be added, of a sense of sartorial correctness in these pursuits—also was to him a major concern.

From his early days Sir Walter Gilbey took a keen interest in horses, horse breeding, sport of many kinds, and farming. In this he followed in the footsteps of his father, who had in his day been a President of the Royal Agricultural Society. One of his chief interests was the Hunters Improvement Society, of which he was a member for a great number of years and twice President. In 1937 he was elected a life honorary member of the Society, a compliment which at the time had been paid to only three other men. He was also President of the London cart horse parade, in which he took a great pride, and Chairman of the Royal Agricultural Hall. The Shire Horse Society was another of his interests, and he continued, long after the coming of motor traction, to be a partisan of the heavy horse; indeed, he used stoutly to maintain that commerce could not be carried on without it. He rarely missed the Richmond Horse Show, the Smithfield Show, or, indeed, any of the popular horse parades. He often acted as one of the judges at these shows.

Sir Walter never missed Ascot or the Derby since he first went racing in 1876, and, up to 1937, he had seen the Derby run on 59 consecutive occasions.

* * * * *

The Late Dr. Oscar V. Brumley

A Tribute

In reference to the death of Dr. Oscar V. Brumley, Dean of the College of Veterinary Medicine, the Ohio State University, recorded in these columns last week, O. V. G. writes:—

"As one of Dr. Brumley's old students, I should like to pay a tribute to his memory.

"Although he is chiefly known in this country through his book on small animals, Brumley definitely belonged to the horse age.

"The writer remembers him as a man of no half measures, a shrewd observer and an expert in the diagnosis of lameness and on surgical diseases generally.

"As Director of the Clinic at Ohio, his administrative ability was shown in the working of the hospital, which was a model of efficiency.

"The writer, as an Englishman and as then a stranger in a strange land, will always particularly remember Dr. Brumley for his many personal kindnesses and for his continued interest since the days of graduation."

* * * * *

ADDRESSES OF DISEASE-INFECTED PREMISES

Foot-and-Mouth Disease:

Norfolk.—The Piggeries, Forestry Commission Land, Bridgham, Norwich (Apr. 13th); Lower Grove Farm, Downham, Wymondham (Apr. 14th).

Swine Fever:

Derbyshire.—Whitewells Farm, Belper, Derby (Apr. 11th).

Essex.—The Buildings, Great Bardfield, Braintree (Apr. 11th); Alton Park Farm, Clacton-on-Sea; "Dawn," Lake Avenue, Rainham; Cuttings Marsh, Parkeston Main Road, Parkeston, Ramsey (Apr. 13th).

Herefordshire.—30, Cutterbatch, Kington (Apr. 13th).

Norfolk.—Railway Hotel, Docking, King's Lynn (Apr. 10th); Rackham's Farm, Spratt's Green, Aylsham (Apr. 12th).

Lincs.—Woodsire Farm, Harrington, Spilsby (Apr. 12th).

Pembrokeshire.—Leaven House, Furzy Hill, Hook, Haverfordwest (Apr. 10th).

Suffolk.—The Manor Farm, Worlington, Bury St. Edmunds (Apr. 12th).

Warwickshire.—Townfields Farm, Butt Lane, Allesley, Coventry (Apr. 12th).

Wigtownshire.—Sandhead Piggeries, Stoneykirk (Apr. 10th).

Wilts.—Eastrop Cottage, Highworth, Swindon (Apr. 10th).

Worcestershire.—Hartlebury Road, Stourport-on-Severn (Apr. 10th); Fairfield, Wolverley, Kidderminster; R.A.F. Pig Club, Hartlebury, Kidderminster; Bishops Wood House, Crossway Green, Stourport-on-Severn (Apr. 12th).

Yorkshire.—Birk's Piggeries, Cemetery Road, Bradford (Apr. 10th); New Buildings Farm, New Marske, Redcar (Apr. 12th); Allotments, Cinder Oven, Stourton, Leeds (Apr. 14th).

* * * * *

CRYSTAL VIOLET VACCINE AGAINST SWINE FEVER

"Experiments with crystal violet vaccine to ascertain its possibilities for the immunisation of pigs against swine fever were reported upon last autumn," states the *Journal of the Ministry of Agriculture and Fisheries* in a recent issue, and continues: "The general conclusion to be drawn from the report was that if this vaccine could be used under suitable conditions it should prove a valuable method for controlling the disease and reducing the losses caused by swine fever.

"The principal practical difficulties to be overcome before this vaccine can be put into general use are those of supply and price. So far, crystal violet vaccine has to be imported from America, and the supply is very short. Moreover, the cost of the vaccine and of treatment would at present make its use uneconomic for most pig producers.

"The possibilities of producing this vaccine in suitable quantities in this country are under examination by the Ministry of Agriculture; but even if it is found practicable to arrange for production, and at a suitable price, some considerable time must inevitably elapse before supplies can be made generally available.

"The results of the experiments already conducted in this country can hardly be of more than academic interest to pig producers generally unless and until supplies of the vaccine become more readily available, and in these circumstances the Ministry has refrained from giving the matter wide publicity. If, however, it is found possible to arrange for larger supplies, a further announcement on the subject will be made at a suitable time."

* * * * *

ARGENTINE MEASURES AGAINST FOOT-AND-MOUTH DISEASE

The Argentine Government has approved a comprehensive programme to combat foot-and-mouth disease, ordering the destruction of infected cattle whenever necessary. The decree makes reporting of the disease obligatory, provides for the isolation of infected animals, creates a fund to finance a curative immunisation programme, and fixes fines up to 5,000 pesos for violation of its provisions. Argentina cattle-raisers have been alarmed recently over British complaints that the foot-and-mouth outbreaks in England were due to the importation of infected meat.—*Meat Trades Journal.*

* * * * *

MINISTRY OF AGRICULTURE NEWS SERVICE

Message for Bull Breeders.—Although the demand for milk continues to increase, the size of the nation's dairy herd cannot be expanded beyond certain limits. It will then only be possible to secure a greater gallonage by raising the production per cow. The bull plays a large part in determining the potential output of his daughters. For this reason, it is important that dairy farmers should use dairy bulls with plenty of milk in their ancestry. When the new bull licensing procedure is brought into force shortly, special dairy (official milk record) licences will be issued in respect of those bulls of a satisfactory standard of conformation whose dams and sire's dams produced not less than 600 gallons with their first calf or 700 gallons with their second calf or 800 gallons with

any subsequent calf. Only official milk records kept in accordance with the rules of the schemes administered by the Ministry of Agriculture prior to October, 1939, or the Central Council of Milk Recording Societies from October, 1939, to December, 1942, or the Milk Marketing Board since January, 1943, will be accepted as proof. Breeders of dairy bulls should immediately take steps to see that they have all the necessary records available. Cross bred bulls will not be licensed in the future.

* * * * *

Foot-and-Mouth Outbreaks.—Out of the 201 outbreaks of foot-and-mouth disease that occurred during the 12 months ending February 1st, 1945, 92 were due to the spread of infection from other animals in this country. Of the remaining 109 outbreaks 95 first appeared among pigs and in 83 cases the pigs had been fed on swill. This illustrates the need for thorough boiling of swill before use and the advantage of buying sterilised swill from a concentrator plant.

* * * * *

Detectives for Dairy Farms.—Wherever dairy cattle are kept thefts by the three "milk-lifters"—mastitis, contagious abortion and infertility—are almost bound to occur unless these thieves are kept under constant supervision. This supervision must be under the eyes of a trained man—a veterinary surgeon. Farmers cannot employ their own private detectives, but it is possible for them, through the scheme for the control of diseases of dairy cattle, to have their herds subjected to regular veterinary inspection, thus minimising the loss of milk through disease. Each month shows an increase in the number of farmers who have placed their cows on the veterinary panel. These farmers are assured that should any trouble appear in their herds early detection gives the maximum chance of effective control. Thus they not only protect their own stock and profit, but ensure that the nation has every chance of receiving an increased milk supply.

* * * * *

Calf-rearing Points.—Milk recording and the use of a bull of good constitution and conformation, and bred from recorded stock, as an aid to raising the standard of the dairy herd, should be the aim of every dairy farmer. If, however, the calves born in the herd are not properly reared for replacement purposes, the pre-natal precautions taken will to a great extent be nullified, for bad rearing may result in adult animals which give the impression that they have been bred from poor types.

There are six essential feeding points in successful calf-rearing. They are—feed at regular hours, feed calf gruels at blood heat, introduce any changes in diet as gradually as possible, make sure that every calf has its proper share of food, feed good quality hay and supply ample and clean drinking water. These two other points are also vitally important. Feeding pails and troughs should be kept scrupulously clean. Pens should be light, airy and well drained and bedded with clean litter.

* * * * *

Pigs and Suspected Disease.—Pig-keepers, and this term includes members and officials of the 5,000 pig clubs operating in this country, are reminded that disease is probably the greatest single source of loss to those who keep livestock. By preventing the spread of disease every pig-keeper protects himself and his neighbour.

The pig that shows signs of lameness or cramp may not appear to be harbouring a dangerous disease, but these symptoms are often the early signs of foot-and-mouth disease. A report to the nearest police station will bring an expert who will say whether the disease is present or not. Owners of livestock are here reminded that under the Disease of Animals Acts certain diseases, or suspicions of these diseases, must be notified to the police. With pigs the notifiable diseases are foot-and-mouth, swine fever and anthrax. Should a pig become ill or die it is better to call in a veterinary surgeon and receive the best advice as to cause of illness or death, rather than to rely on the opinion of the man "who knows all about pigs."

Disease is easily spread through the movement of dirty and infected sacks, bags, barrows and containers of all kinds that are used in the collection or conveyance of edible waste, bones, straw or pig-manure. It is wise to regard all used containers with suspicion until they have been disinfected. A good disinfecting agent is washing soda dissolved in boiling water and applied as hot as possible.

No straw that has been used for packing or other packing materials should be allowed to come into contact with pigs, or for that matter any other animal. There are Orders on this subject, *viz.*, the Foot-and-Mouth Disease (Packing Materials) Orders, 1925 and 1926; one paragraph from the Orders is worth repeating: "No hay or straw from any source which has been used for packing purposes shall be brought into contact with any animal in Great Britain, or be removed from any premises except used as packing or for the purpose of destruction or of being returned in a crate or box to the sender thereof for further use as packing. Hay or straw which has been used for packing purposes if not so used again or returned as herein mentioned, shall be destroyed."

* * * * *

"The Universities should select candidates to give expression in the House to the great contribution which science and learning can make to the solution of the tremendous political and social problems which face us."—Sir John Boyd Orr, the Nutritionist, victor of the Scottish Universities by-election.

* * * * *

A world record price for a Shire gelding was established at the Shire Horse Society's national gelding show and sale at Shrewsbury, when the champion—Black Prince, shown by Mr. J. H. Dobson, of Bradford—was bought by Mr. G. Gardner, of Wilmslow, for 470 gns.

* * * * *

STALLION LICENCES

"Signs of a revival in heavy horse breeding are shown by the latest Ministry of Agriculture figures for licensed stallions," states the *Farmers' Weekly* in a recent issue, and continues: "Last year over 1,300 heavy stallions were licensed compared with 1,200 annually for the years of this war. Preliminary figures for this year indicate, state the Ministry, that the 1,300 total will be maintained for 1945. In 1937 and 1938 over 1,850 heavy stallions were licensed each year. Light horse breeding suffered even more severely. In 1938 and 1939 over 200 light stallions were licensed, but there were less than 80 in 1943. About 90 light stallion licences were issued last year. Pony and cob stallion licences declined by 50 per cent. between 1939 and 1943."

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

* * * * *

THE ABATTOIR: ITS PLACE IN VETERINARY EDUCATION AND RESEARCH

Sir,—Mr. Johnston has raised some very important issues in discussing the usefulness of the public abattoir for teaching and research, and there will be few who would deny his main contentions. I would appreciate the opportunity of developing this correspondence with a view to obtaining further opinions on the major issues facing us at the present time, namely, the satisfactory provision of facilities and material for teaching and research, so that we may obtain a more balanced development of the various branches of veterinary science.

The most important functions of the veterinary profession are the improvement of our livestock, and the prevention and cure of disease. Improvement of livestock is an enormous problem and must be undertaken as a combined effort by all those interested in the livestock industry, while the prevention and cure of disease is almost wholly a veterinary matter. History has shown that the best foundations on which to build preventive and curative medicine is a knowledge of normal structure and function, along with a knowledge of the essential nature, geographical distribution of, and morbidity and mortality rates from animal diseases, but if we examine the attitude of the veterinary profession to the fundamental triad—anatomy (including histology and embyology), physiology (including animal husbandry), and pathology—we find more or less complete indifference. Practically the only parts of these subjects which receive recognition and financial support are those which can be directly utilised in the prevention and cure of disease, *viz.*, bacteriology, biochemistry and parasitology. The less applicable but none the less important subjects have been so badly neglected that we must admit to having practically no anatomists, physiologists or pathologists engaged in serious or extensive research (the teaching departments are so understaffed as to have little time for such work), and further, in the subjects of physiology and pathology, we have, as a profession, practically no adequately trained personnel. I am convinced that the recognition of the necessity for the active pursuit of the "fundamental triad," the provision of adequate facilities and opportunities in these subjects and of good prospects for those interested in them are the factors best calculated to bring about advancement in veterinary "science."

Mr. Johnston has pointed out the great potential value of the accumulation of material in abattoirs for teaching and research in many subjects. The failure of the country, and the profession, to utilise these is a disgrace and one wonders what might be said to-day if the medical profession were to ignore the usefulness of large hospitals for teaching and research, since abattoirs and hospitals are similar, insomuch as they provide the largest centralised

accumulation of subjects. Other centres having accumulations of useful veterinary material which could be tapped without much difficulty or expense are the knackeries. I believe that it should be one of the future aims of the profession to ensure that as high a proportion as possible of animals dying, and being killed, should be submitted to proper *post-mortem* examination (including, where necessary, haematological, biochemical, parasitological and bacteriological, as well as pathological examination). In this way we would obtain the necessary information concerning the nature and distribution of, and the morbidity and mortality from, animal diseases. To do this adequately, much larger staffs (professional and technical) would be required at all abattoirs to carry out the routine public health work, to provide a good diagnostic service and to keep records and to carry out research, both in the laboratory and in the field. In addition, the centralisation of knackeries, or at least part of them concerned in the killing and dressing of carcases is essential, and there does not seem to be any great reason why this could not be done. It would be quite easy and more efficient and hygienic for such centres or part-knackeries to distribute the dressed carcases, viscerae, etc., to the consumers, rather than to allow them to deal with the carcases in the present filthy premises and manner. In this way the centres could gradually be put under veterinary control.

The questions of centralisation, proper examination and control of all farm animals, killed and dying, are closely bound up with the future provision of regional laboratory services for practitioners and others, the need for which is widely felt and recognised. It is certain that if adequate veterinary staffs could ultimately be situated regionally in abattoirs and at hygienic knackeries, then these centres, already the ultimate gravitation points for the various farm animals, would naturally become the regional laboratories.

Yours faithfully,

15, Moray Place, Edinburgh. DAVID MCFARLANE.
April 10th, 1945.

. . . . .

Sir,—The suggestions made in recent correspondence by Messrs. McFarlane and Johnson *re* the use of the knackery and abattoir in the training of veterinary students have much to recommend them. The facts given are not new, but such simple facts often require repetition before they have effect. The only way of becoming proficient in anatomy and pathology is by familiarity with the normal and diseased tissues; the only places to give ample facilities to gain such knowledge in an interesting way are the abattoir and the knackery. One may also mention here such places as cats' and dogs' homes, large poultry farms and bacon factories. The training so derived will not only help to turn out better meat inspectors but also be of considerable benefit to the practitioner by giving to him a better grasp of some of the conditions he will be called upon to attend.

When examining animals prior to slaughter there is usually no history except, perhaps, sometimes a veterinary certificate, and hence one approaches one's subject with an unbiased mind, relying on one's own powers of observation, with the autopsy to confirm or deny the diagnosis.

The present time, when there are portents of reorganisation in veterinary education, is opportune to consider this matter seriously.

Since the Ministry of Food have taken control of livestock awaiting slaughter, facilities for carrying out detailed examination, *e.g.*, rectal examination, are enhanced, but it is questionable if private owners—at least some of them—would look benignly on the inspector or students performing a detailed *ante-mortem* examination, lest these might do damage, and also from the notion that one may gain information prejudicing the animal's chances of being passed for food and which might otherwise be concealed.

The abattoir certainly seems to be an ideal place for research and for carrying out disease surveys, especially under the present marketing system, when animals are marked and can be traced back to their place of origin.

The advantages to be gained from the presence of specialists in pathology, bacteriology and other subjects would be many. The local veterinary officers would be only too anxious to help in the little spare time at their disposal and would be in a position to supply abundant material. Is there any reason why research scholarships under the Veterinary Educational Trust could not be tenable at selected abattoirs? Or, again, why the Ministry of Agriculture laboratory staff could not be decentralised and perform routine work at various centres throughout the country, thus saving time, postage, etc.?

In conjunction with the extra-mural training now undertaken by students, a period of at least three months in a nominated abattoir and/or knackery would, in my humble opinion, be of very real value to the veterinary surgeon.

Furthermore, bearing in mind the recent legislation giving to the veterinary profession more powers in the control of milk production, it behoves us to prepare for the time when our rightful claims to the inspection of all meat and meat products will be acknowledged. With this object in view, has not the time come to include meat and milk inspection as a separate subject for examination by the R.C.V.S., no longer occupying its present merely ancillary position?

Yours faithfully,

K. O'SULLIVAN.

12, Raglan Road,
Edgbaston, Birmingham.
April 8th, 1945.

* * * * *

LEAD POISONING BY SALVAGED SOYA BEAN MEAL

Sir,—I was very interested to read the Clinical Communication on "Lead Poisoning by Salvaged Soya Bean Meal," by Messrs. Watson and Adams, of Bradford, in the *Record* of April 7th.

Some four years ago I had a similar experience in a herd of about 30 animals which had received liberal feeds of this meal for about a week before I was called in.

The owner suspected foot-and-mouth disease owing to the very marked salivation shown by six animals. This symptom seems to have been absent in the cases described by Watson and Adams. The other symptoms were similar to those described by them, *viz.*, dullness, wandering aimlessly about the fold in which they were housed, and pounding the head against the wall, resulting in the horns being worn down until the horn-core was exposed and bleeding.

During the ensuing two or three weeks 13 animals died or were slaughtered.

Treatment by me was similar to that by Watson and Adams, *viz.*, mag. sulph. and pot. iod.

Analysis of the soya bean meal revealed about 0·2 per cent. copper and 0·15 per cent. lead. Upon careful macroscopical examination of the meal, granules of copper and lead about half the size of a pin's head could be seen.

Analysis of the contents of the reticulum in two of the cows which died revealed 2 per cent. copper and 1·5 per cent. lead, and this material was easily discerned by the naked eye to contain granules of metal. This analysis, revealing that the contents of the reticulum contained ten times as much metal as the original meal, shows that the reticulum is quite prepared to harbour smaller fry than safety-pins and pieces of fencing wire!

I was about to record this case in your periodical at that time, but was just preceded by a Clinical Communication on the same subject by another member. He, unfortunately, had not had an analysis made and was at a loss to know the exact cause of the trouble. I communicated with him and had his reply to the effect that he also, upon examining the meal closely, could observe the metal.

I might add that my client obtained compensation from the vendor of the meal.

I wonder if any member could enlighten one as to how the metal gets into, and so well distributed through, the salvaged soya bean meal?

Yours faithfully,

A. S. HARRIS.

16, Bede Road, Barnard Castle,
Co. Durham.
April 9th, 1945.

* * * * *

STILBOESTROL DIPROPIONATE

Sir,—I think the thanks of veterinary pathologists and physiologists are due to Mr. R. H. Smythe, of Nottingham, and Miss Joshua, of Finchley, for publishing the articles on the treatment of neoplasms in the dog with stilboestrol injections. They open up a new era in the treatment of these troublesome cases and if continued success results the difficulties and pain will be largely overcome and supersede surgical procedure.

Continued success to Dr. Tom Hare's treatment of Beta haemolytic streptococcal infections in canine patients.

Yours sincerely,

G. MAYALL, M.R.C.V.S.

Bolton.

* * * * *

VETERINARY EDUCATION MEMORANDUM

Sir,—Having had the curiosity to make an analysis of the published list of 415 signatories of the above, may I be allowed to give the following figures and classifications as gleaned from the current Register.

(1) General practitioners: male 129; female 43; total 172.

(2) Veterinary Officers, including Investigating Officers in Great Britain, 89; those stationed abroad, 64; in Eire, 26; Northern Ireland, 13; total 192.

(3) Professors (2), and other college teachers; research workers employed by wholesale chemists or engaged in dairying and agricultural institutes, 20.

(4) Officers in the R.A.V.C. or on "emergency service," 14.

(5) Signatories so recently qualified as not to appear in the current register, 5; others not possible to classify definitely, 12; total 17.

Some comments upon the above figures and classifications seem applicable, and can follow the same order.

(1) Of the total 172 general practitioners of both sexes I find that, taking 120 of them, the average number of years during which they have been qualified is four. I suggest that it is fair and accurate to say that the great majority of the 43 women practitioners are wholly or mainly engaged in small-animal practice.

(2) It is worthy of note that the 64 officers abroad are scattered over the following countries: Uganda, Nigeria, Palestine, Sudan, Rhodesia, Gold Coast, Kenya, India, Cyprus, Malta, Canada, Jamaica, Trinidad, Tanganyika and Gambia. It would thus seem that, whilst only furtively and with some secrecy conducting their campaign at home, the sponsors have scoured the ends of the Empire for signatories.

Of the remaining personnel on the lists, numbering 165, with due respect the general comment may be made that the great majority are, by the nature of their work, somewhat outside the experience of the hurly-burly of general agricultural practice, and largely in a sheltered position. All will agree that it is the privilege and duty of every graduate—irrespective of age, sex, section or country—to study and form personal views upon our varied problems, and it is in that and no invidious spirit that the above analysis is given. In theory everyone's vote in a plebiscite is equal in value. Nevertheless, I suggest that, given some realism, this is not always so, and that a considerable experience of the actual life conditions, work, and practical training needed to produce the successful veterinary practitioner are still vital to forming sound conclusions upon our domestic and educational policy. Now that the "security silence" has, after many months of this secret canvass, been lifted, I suggest that the results can hardly be encouraging to its sponsors. We are not told how many said "No" to the canvassers, but at the best the number of signatories of mature age and experience who belong to the main body is pitiably small. I suggest also that those tempted to join the list may well pause to study it and perhaps find some guidance in these details. Upon the memorandum itself, the trenchant and able letters of the correspondents in your current issue, are, in my view, fully cogent, and I would add but one comment. It is that, in sending this furtively prepared memo. and list *direct* to Council of R.C.V.S., its sponsors have attempted to influence that body in secret upon grave matters which it has been considering for some years, and which were in a very real sense *sub judice*. Such methods appear to me to be indelicate at best, unworthy to be followed, and perhaps positively improper. They savour not a little of an endeavour to steal a march upon the rest of the profession and they cannot be looked upon as "cricket" by the average Britisher.

Yours faithfully,
E. P. Edwards.

Sandy Lane,
Prestatyn, N. Wales.
April 10th, 1945.

* * * * *

VETERINARY EDUCATION AND THE UNIVERSITIES

Sir,—The two memoranda in a recent issue of the *Record* contained many good points, but both memos insist on selling us, the power of R.C.V.S., and our "one-portal system" into the doubtful hands of largely veterinary-ignorant universities.

In 1943 and 1944 the R.V.C. students voted unanimously in favour of retaining our "one-portal system." Now, by a percentage vote *at the end* of the meeting (this is suspiciously reminiscent of methods used by multiportalites some 18 months ago in London), they would destroy it—a strange and sudden turn of face indeed. Also, many signatories to the other memorandum were persons who, as students or members, have voted in favour of our one portal during the last two years!

Are these persons deliberate turncoats or are they merely easily persuaded by the backstair methods of a multiportalite clique?

In any case, the issue was decided last year at the various N.V.M.A. meetings and our "one-portal system" and the power of R.C.V.S. made safe in honest voting.

We can afford to laugh, therefore, at the latest buffoon-like antics of the multiportal clique. Nevertheless, we must study and vote with care in the forthcoming R.C.V.S. elections. We must watch for the multiportalites and would-be veterinary Hitlers and save our votes only for those who we know have the true interests of the profession at heart.

Yours faithfully,
Robert S. Townson.

St. Austell, Cornwall.
April 8th, 1945.

* * * * *

"EMINENT VETERINARY CLINICIANS OF THE PAST"

Sir,—I believe that Dr. Edwards will find that he is correct in forming the opinion that the introduction of the art of shoeing with nailed-on shoes to the West, occurred at a far earlier date than has been suggested by some writers.

William the Conqueror has been credited with having introduced it to this island, when, in actual fact, he found it already in existence!

Our ancestors were not so ignorant as some historians would have wished us to believe, for they were able to transport horses and chariots to Gaul, and to manoeuvre these as satisfactorily in retreat as at the charge, compelling admiration from the Romans; and it was this "early interference with affairs on the continent" that prompted Julius Caesar to invade this island, where he suffered defeat and had to abandon his enterprise at the hands of Cassivellaunus—one of the earliest masters of the art of war and its eternal principles.

It is probable that the introduction to the West was not long after the appearance of the horse archer: but, unfortunately for all those engaged in historical research, evidence of matters is often confusing and contradictory. No help can be obtained from the well-known treatise *De Re Militari*, or in the pages of *De Bello Persico*.

Yours faithfully,
J. F. D. Tutt.

"Rothiemurchus,"
St. Cross, Winchester.
April 14th, 1945.

* * * * *

THE DEMOBILISED VETERINARY SURGEON

Sir,—Some months ago I wrote suggesting the formation of a panel of those willing to co-operate in assisting veterinary surgeons leaving the Services to see practice.

Those wishing to enter general practice will most certainly require a practical refresher course, and it is the duty of those fortunate enough to have remained in practice at home, to see to it that our colleagues are given every opportunity to rehabilitate themselves.

Yours faithfully,
F. Beckett.

Berkeley Lodge,
Blandford, Dorset.
April 9th, 1945.

* * * * *

R.C.V.S. COUNCIL ELECTION

Sir,—With the approach of the 1945 R.C.V.S. Council Election, the memory of an unsavoury incident at the 1944 election is refreshed, and this letter is written in the hope that a similar occurrence may be avoided in future. I refer to the publication in the *Record* of the Election Address of one candidate, Mr. Gould, a week later than the advertised date.

In the *Record* of April 29th, 1944, it was announced that election addresses would be published on May 20th, 1944, *and should be sent to the "Record" by May 8th*, 1944.

Mr. Gould's address was published on May 27th, 1944, the closing date for the receipt of voting papers being May 30th, 1944. It is reasonable to suppose that by the 27th a large proportion of the papers had been despatched. Perhaps this was fortunate for Mr. Gould, whose views were not popular at that time. At any rate, his return to office was achieved.

Since no explanation or apology for the occurrence has been published by Mr. Gould or on behalf of the *Record*, it would seem that the delay in publication was "political" (to use a term beloved of Mr. Gould's supporters).

If the assumption is correct, the use of the *Record* in this way cannot be too strongly condemned.

Yours faithfully,
J. W. Simpson.

34, Steele Avenue, Carmarthen.
February 20th, 1945.

[The occurrence of the "incident" of which our correspondent complains is attributable to the fact that Mr. Gould's election address was received between Committee meetings and during staff holidays and was inserted inadvertently in these circumstances. The Editorial Committee has taken steps to ensure that there will be no recurrence.—*Editor.*]